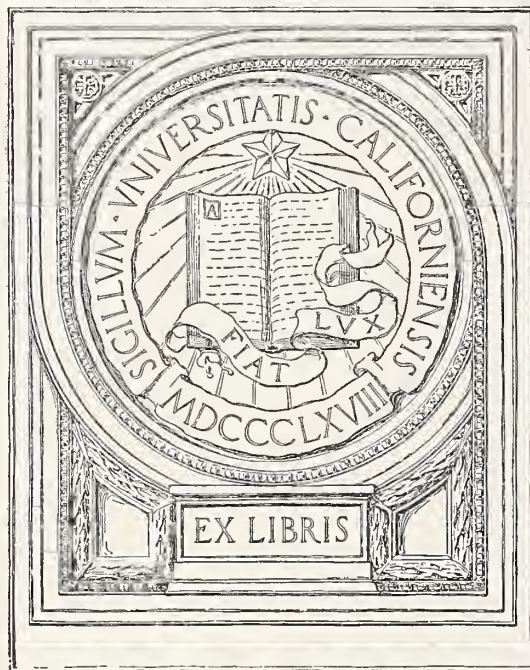


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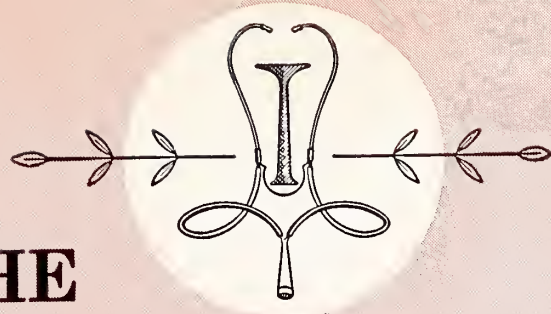


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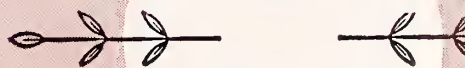
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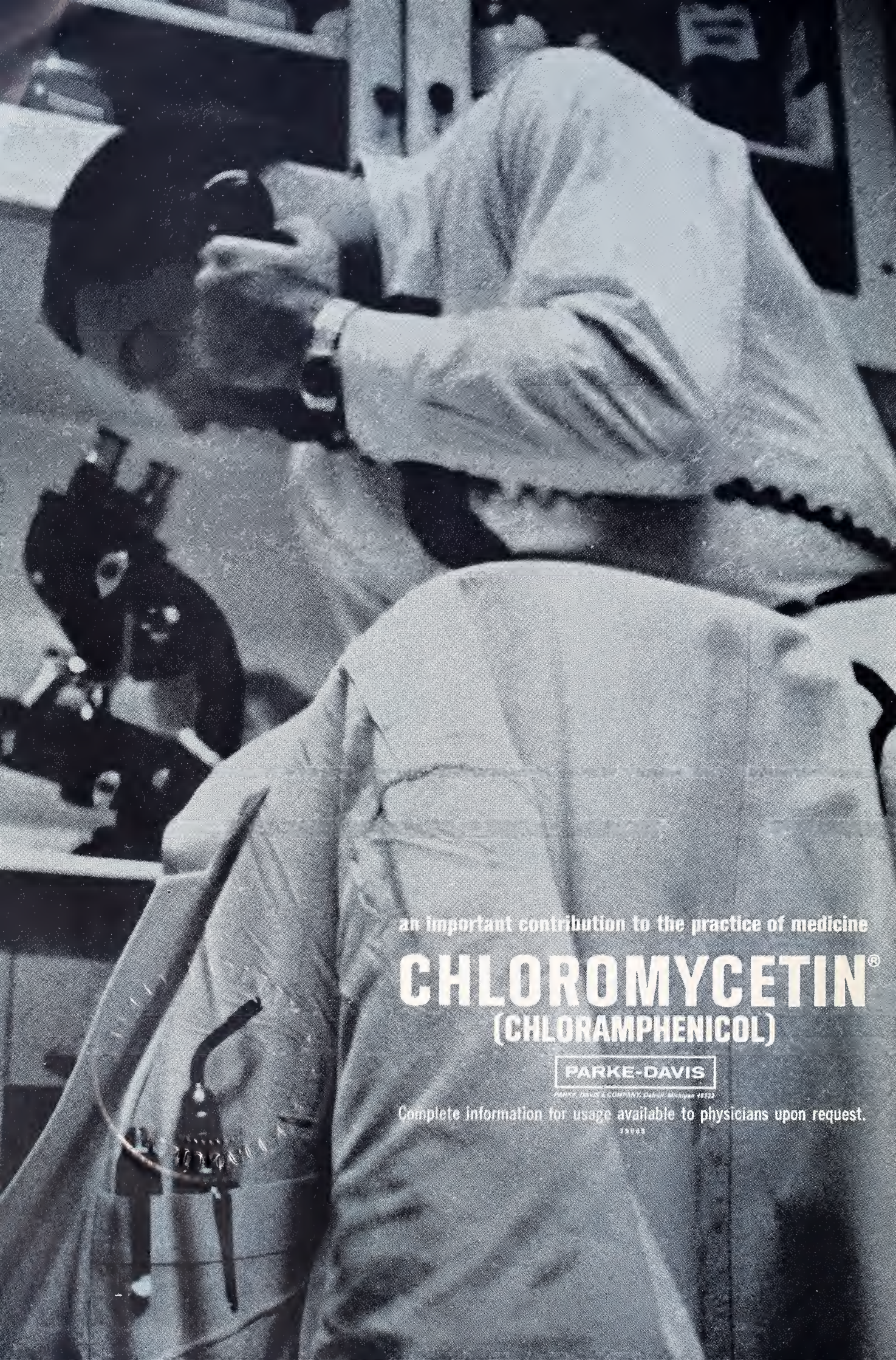
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Special Issue: The Hertzler Clinic

Part I

The Editorial Board is pleased to present this special contribution from the Hertzler Clinic in Halstead. Dr. Robert G. Rate was the individual who supplied the driving force without which no such issue would ever come into existence. His efforts were so successful that it was not possible to get the papers all in one issue, and it will be continued in February. We believe the Society members will find these numbers of interest.



Radioisotopes . . .

. . . *In a Small Hospital:*
"One Picture Is Worth a Thousand Words"

EMMET N. McCUSKER, M.D., *Halstead**

IN THE EARLY 1950s Homer L. Hiebert, M.D., and Frank Hoecker, Ph.D., recognized the advances being made in nuclear medicine. They instituted a program to make isotopes available to smaller communities throughout the Central Plains States. Part of the program consisted of special courses in the clinical application of isotopes sponsored by the Extension Division of the University of Kansas School of Medicine in which 27 physicians of the area enrolled. A second portion consisted of providing a technician who traveled a circuit on a monthly basis to establish procedures. In 1957, they wrote: "There is no categorical answer to the question of how successful a clinical radioisotope program is in a small hospital. As with every other clinical service its success depends upon the ability and interest of the physician in charge, and upon his relationships with the other physicians with whom he works."

The Hertzler Clinic was fortunate to be included in this study and the present report is a summary of subsequent development in nuclear medicine at our Institution. Initially, the use of radioactive iodine in the diagnosis and treatment of thyroid disease con-

Experience in the use of radioactive isotopes with special reference to photo-scanning in a smaller hospital is portrayed. A department of nuclear medicine is felt to be extremely useful as well as practical.

stituted the major portion of our studies. However, as clinical experience increased, and with major equipment advances, our department expanded physically from an 8' x 8' cubicle (*Figure 1*) to a spacious area measuring 45' x 15' (*Figure 2*). In addition to size the variety of procedures has increased to where we now consider routine the examinations listed in *Table 1*.

In the last few years great impetus has been given to our program by the addition of a photoscanner unit (Nuclear-Chicago) to our equipment. Until 1963 we had depended upon percentage uptake for our thyroid evaluations. We were, however, aware that throughout the country thyroidologists were emphasizing more and more studies of the "hot" and "cold" nodule. With our present unit we are able to produce for our physicians and patients a graphic outline of the thyroid as illustrated in *Figures 3 to 6*.

* From the Department of Radiology and Nuclear Medicine, the Hertzler Clinic, the Hertzler Research Foundation, and the Halstead Hospital.

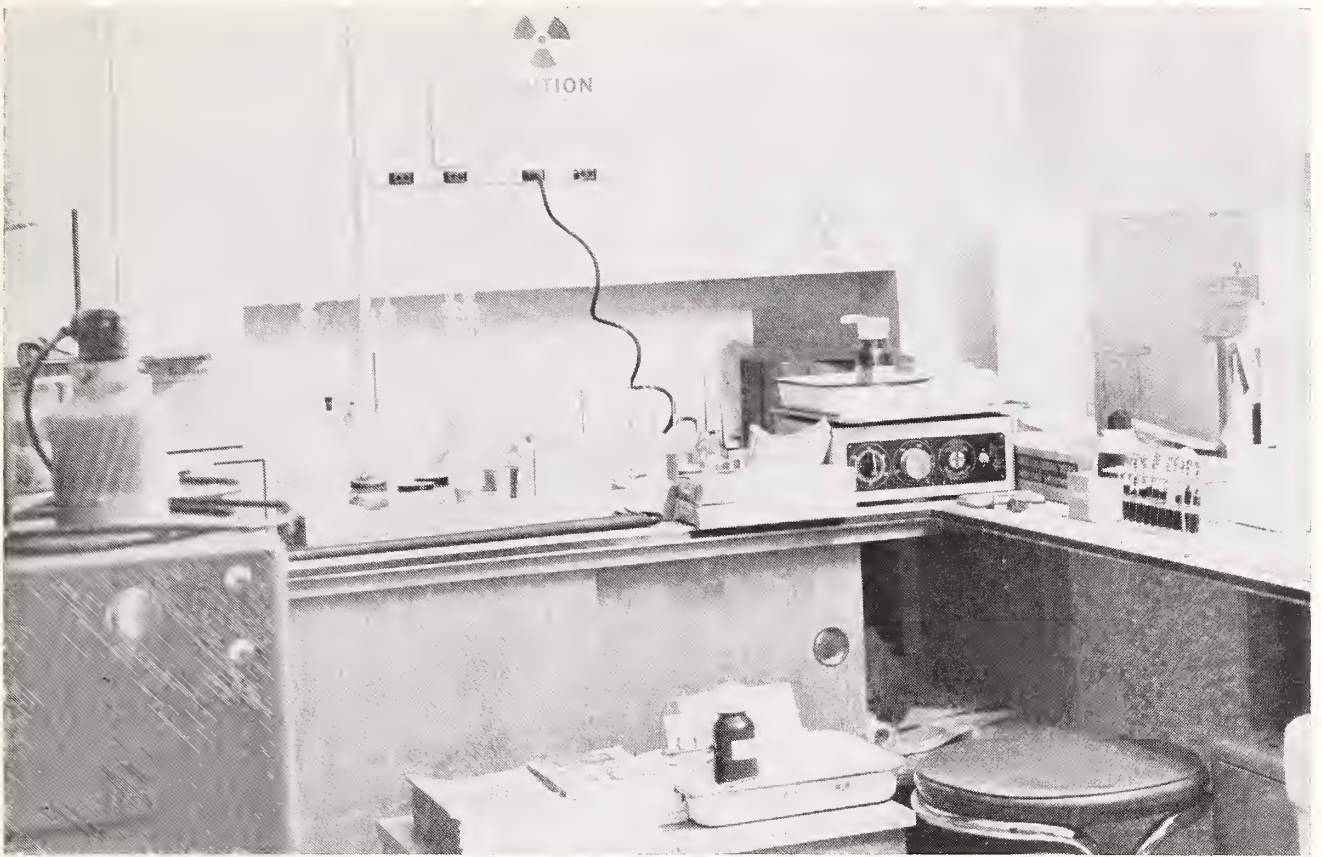


Figure 1. Original laboratory space.

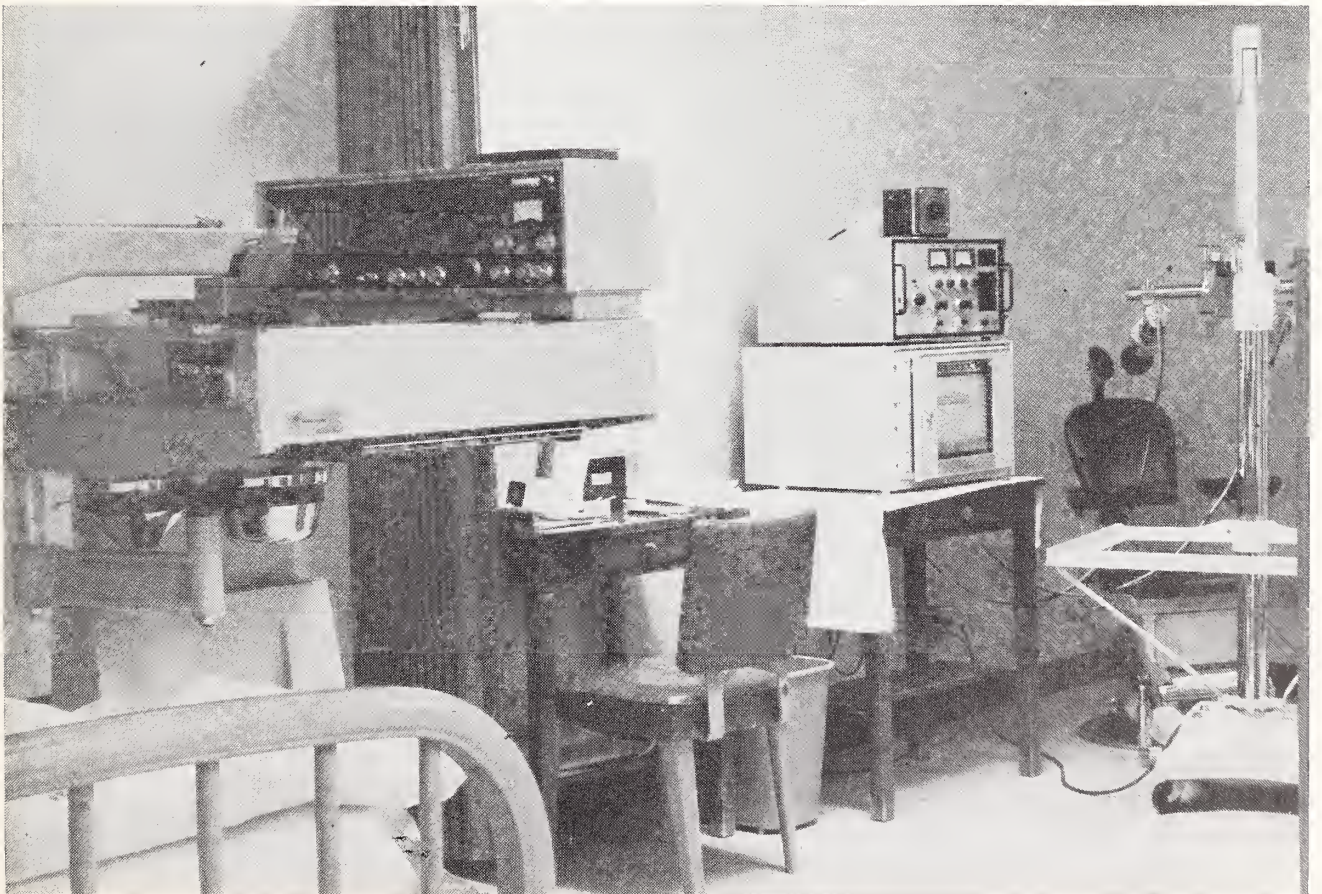


Figure 2. Present isotope unit.

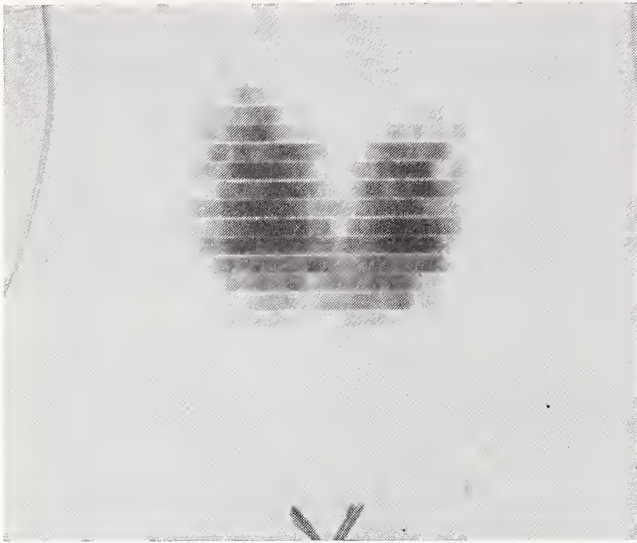


Figure 3. Normal thyroid.

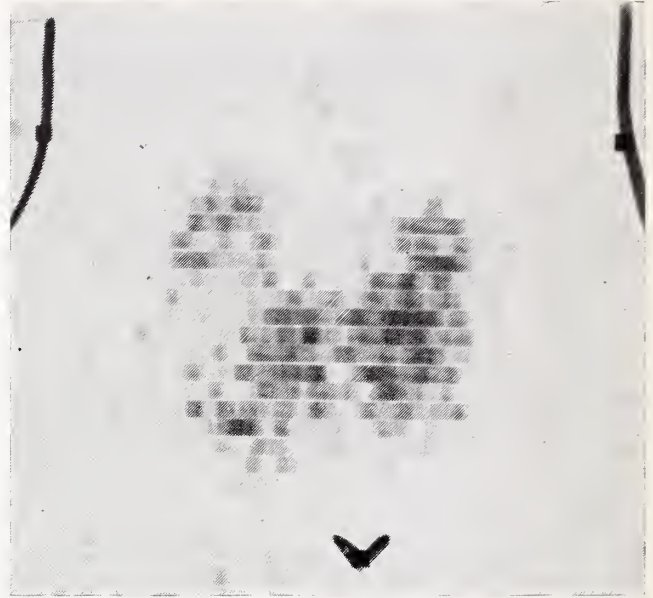


Figure 4. "Cold" nodule in the right lobe of the thyroid.



Figure 5. Diffuse hyperthyroid pattern.



Figure 6. Scan of thyroid in Figure 5 after RAI therapy.

TABLE 1.
ISOTOPE PROCEDURES DURING A
12-MONTH PERIOD

Blood volume	108
Brain scan	189
Chromium-51 cell survival	3
ET-3 (thyroid in vitro study)	2,861
Liver scan	54
P-32 therapy	3
Radioactive iodine therapy	17
Radioactive iodine uptake	213
Renal scan	41
Renogram	47
Schilling CO-57 (pernicious anemia)	37
Thyroid scan	194
Triolein fat absorption	25

Brain Scanning

Since the initial studies of Blau and Bender using chlormerodrin instead of serum albumin, great advances in brain scanning for tumor or space-occupying lesions have taken place. Tumors detected include:

glioblastoma multiforme	ependymoma
meningioma	oligodendroglioma
astrocytoma	acoustic neuroma
brain metastasis	craniopharyngioma

Brain scanning technic at the University of Michigan² has been developed to the point where they state: "Photoscanning is now the first procedure we employ in the management of brain tumor suspects after neurological examination and routine roentgen ray

studies have been completed." Antero-posterior and lateral scans allow the lesion to be accurately located within the skull area. The procedure is painless and nontraumatic. A survey of over three thousand reported brain scans show an overall accuracy of 80 to 85 per cent with no harm to any individual.

In our clinic we give 20 microcuries per kg. up to a maximum of 1,400 microcuries of mercury¹⁹⁷ intravenously and begin scanning two and one half to four hours later (*Figures 7 to 11*).

At the time our scan unit was installed we felt it would be used primarily for thyroid evaluations. We have, therefore, been amazed to find that we are now doing almost as many scans of brain, as that of thyroid or kidney.

Scans of Other Organs

Requests for liver scans continue to increase. At present, employing radioactive rose Bengal, we are able to demonstrate the outline of the liver, plus an indication of function (*Figure 12*). *Figure 13* demonstrates the scan showing a large metastatic nodule in the right lobe.

While not replacing the conventional intravenous pyelograms study, scans of the kidney are readily obtained with mercury¹⁹⁷ (*Figure 14*). In many instances we add additional information in regard to morphology and function as illustrated in *Figure 15* (lymphoma of the right kidney), or *Figure 16* (hemi-nephrectomy of the left kidney).

So far, our group has not felt the need of cost-accounting to justify the department, feeling that the part the isotope program plays in diagnosis and treatment speaks for itself. Considerable impetus to

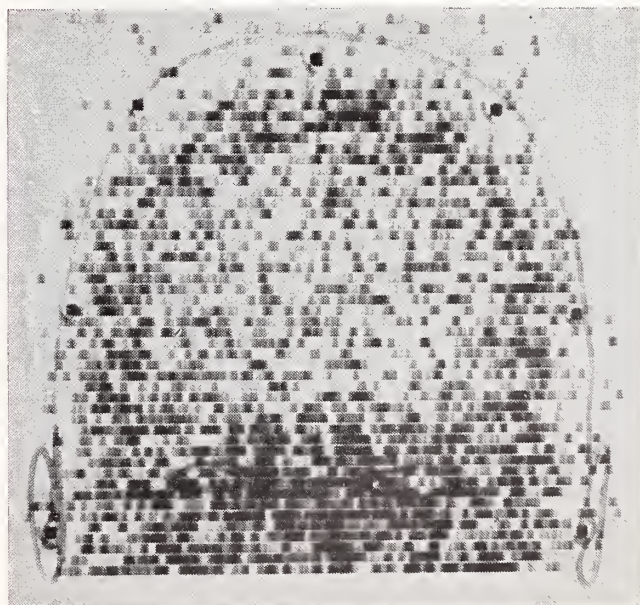


Figure 7. Normal brain scan; antero-posterior and left lateral brain scan.

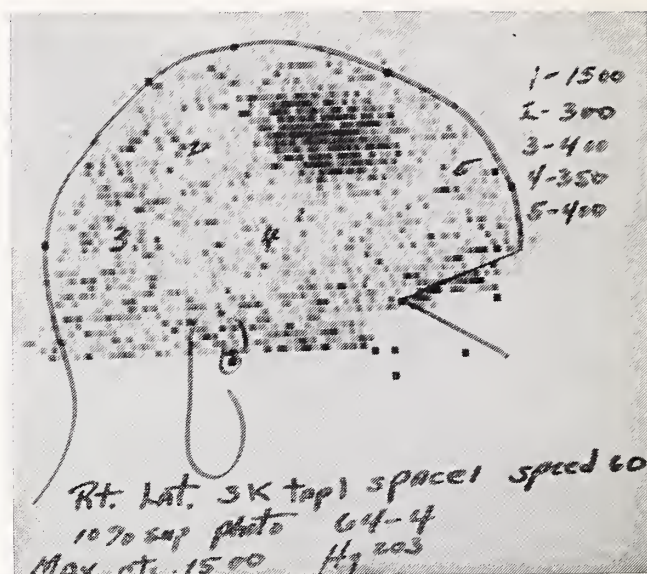
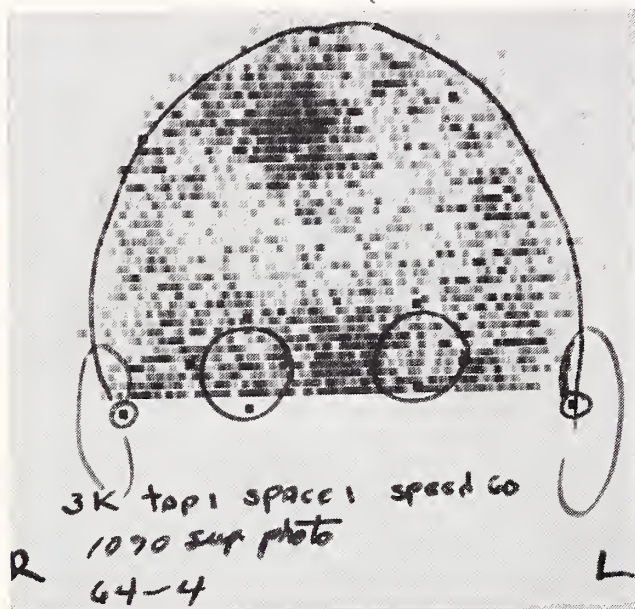


Figure 8. Meningioma; right lateral and antero-posterior brain scan. (Patient 1) M., age 52 with a history of convulsions 2 months before admission. Routine x-rays of the skull were normal. Craniotomy, done elsewhere, revealed a meningioma.

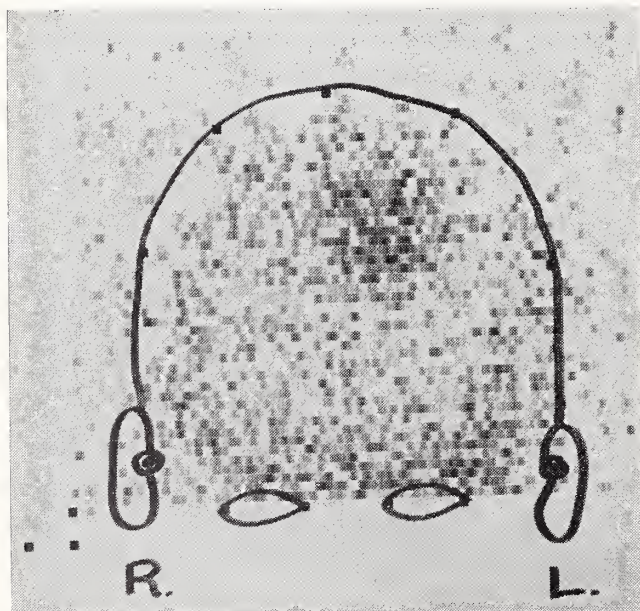


Figure 9. Brain scan showing meningioma. (Patient 2) F., age 57. The admission complaint was "blacking-out spells." X-rays of the skull were normal. No eye changes. The spinal fluid protein was elevated. Craniotomy was done elsewhere—meningioma.



Figure 10. Brain scan showing astrocytoma. (Patient 3) M., age 3. Left hemiparesis of 5 weeks' duration. Surgical finding: astrocytoma of right temporal lobe.

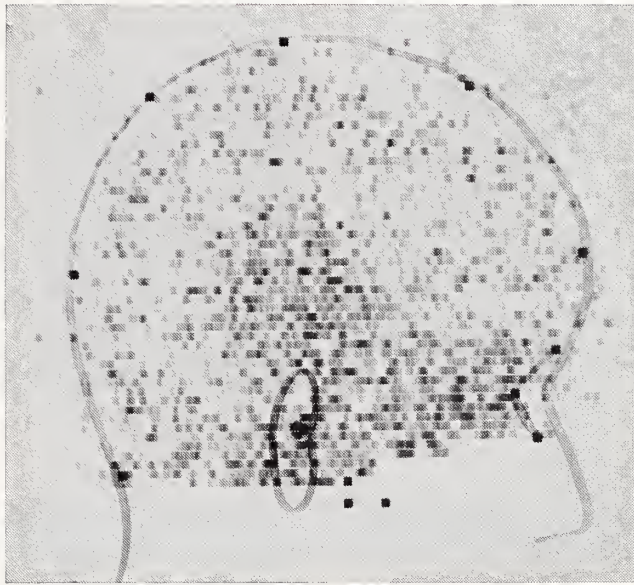


Figure 11. Brain scan showing metastasis. (Patient 4) F., age 62. On admission her husband stated that for the past 5 weeks she had talked loudly and incessantly. On the basis of her previous history of carcinoma of the breast, the scan was interpreted as metastasis. X-ray therapy to the involved area was given. The initial response was excellent.

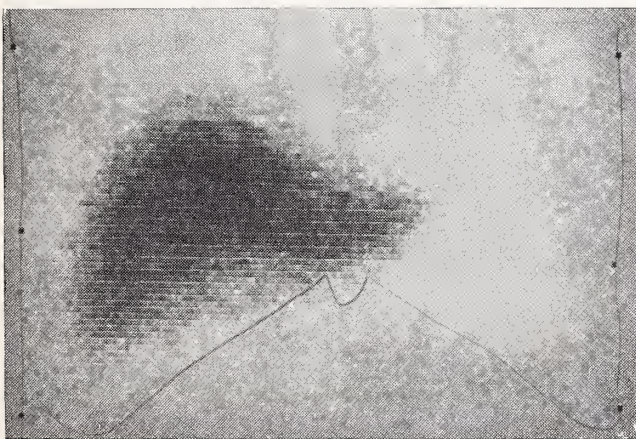


Figure 12. Normal liver.

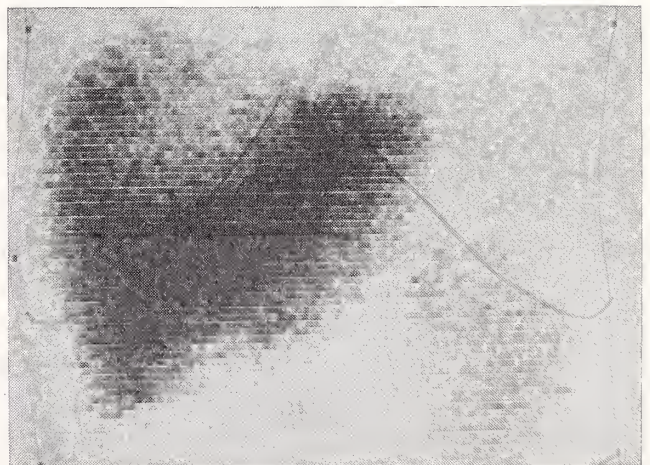


Figure 13. Metastasis to the liver.

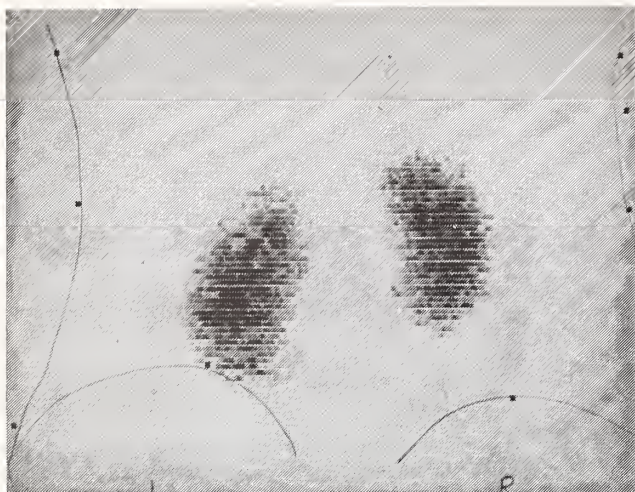


Figure 14. Normal kidneys.

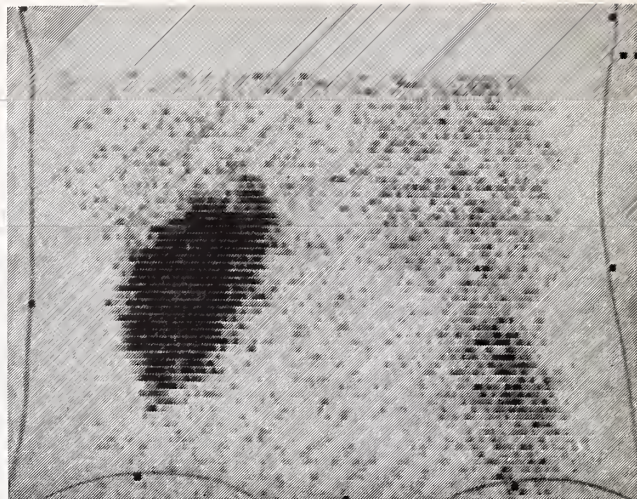


Figure 15. Lymphoma of the right kidney.

brain scanning, for example, resulted when the third patient we scanned had positive brain tumor findings. Hyperthyroidism, with few exceptions is treated with RAI in our Institution.

Careful consideration of the initial expense of equipment is given, but a lease agreement can be utilized while studying the possibility of new procedures. The training of technical assistants remains a problem, as it was when Hiebert and Hoecker wrote in 1957. We were able to meet this problem by sending our chief x-ray technician* to the University of Michigan for six weeks of intensive training. Subsequent to this, he now spends full time in the isotope department.

Summary

With rapid technical advances in equipment, with commercially available isotopes which are safe and easy to handle, and with continued expansion of new diagnostic isotope tests, we feel that a department of nuclear medicine is feasible in small hospitals. We also feel that the late Homer L. Hiebert, M.D., would be happy to know that the seed he sowed did not fall on barren ground.

* Harold Folck, R.T.

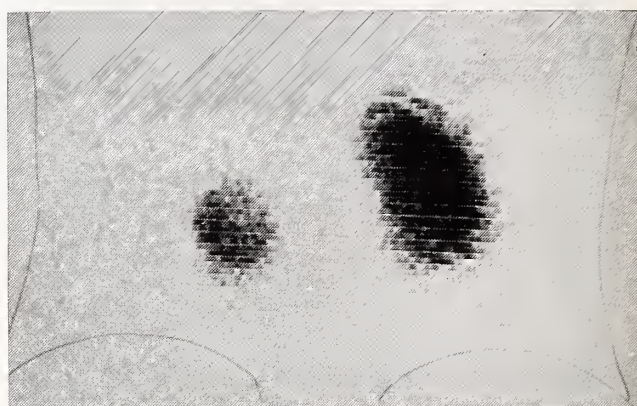


Figure 16. Hemi-nephrectomy of the left kidney.

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Angina Pectoris . . .

. . . Versus Chest Wall Pain

DONALD D. DECKER, M.D., *Halstead**

CHEST PAIN HAS BECOME widely recognized as the predominant symptom of myocardial ischemia. The apparent increase in the incidence of coronary artery disease which has occurred in the past several decades has made the medical profession and the general public chest-pain conscious, and today's clinicians are being called upon with increasing frequency to attempt to determine whether a patient presenting with chest discomfort does or does not have coronary artery disease. Angina pectoris often does not present with the classical history, and an increasing number of cases of atypical angina are being reported in the literature. Master recently emphasized the fact that noncardiac chest pain often presents with features which have in the past been considered to be indicative of myocardial ischemia. The multitude of noncardiac causes of chest pain compounds the clinician's problem. The seventh edition of French's *Index of Differential Diagnosis* lists 36 causes of chest pain, and many others could be added to the list.

A thorough history eliminates many of the differential diagnostic considerations but a systematic approach is necessary to eliminate the remaining possibilities when the history and physical examination are not conclusive. Appropriate x-rays and other studies will in most cases rule out visceral diseases such as gallbladder disease, peptic ulcer, and esophageal hiatus hernia. Intrathoracic disease such as pulmonary disease, pleuritis, mediastinal neoplasm, aortic aneurysm, etc., can usually be similarly ruled out although cardiospasm and diffuse esophageal spasm may be more difficult to rule out. Occasionally a diagnostic problem is presented by arthritis of the cervical spine, cervical rib, cervical disc, cervical cord tumor and other diseases of the neck region. Arthritic involvement of the shoulders, bursitis, tendonitis, capsulitis, and other shoulder syndromes, although common, usually present diagnostic physical or x-ray findings.

Major Categories of Chest Wall Pain

In the majority of cases of chest pain encountered in the practice of general practitioners, internists, and cardiologists the differential diagnosis rests between chest pain due to coronary disease and benign

The differential diagnosis of chest pain has assumed major importance in present day medical practice because of the current prevalence of coronary artery disease. A difficult, frequently encountered problem is that of differentiating the pain of myocardial ischemia from pain of chest wall origin. The major categories of chest wall pain are reviewed and some of the features which are helpful in arriving at a correct diagnosis are discussed.

chest pain of chest wall origin. It is in this area that most diagnostic errors are made, but the proper distinction can be made with greater assurance when the most common causes of chest wall pain are considered. Space does not permit a detailed description of the rare chest wall pain syndromes, but for practical purposes three major categories must be considered, and will be found to be the cause in the majority of cases. These major categories are pain of neuritic (or neuralgic), skeletal, and muscular origin. Differentiation between these three groups is sometimes difficult and perhaps academic since the conditions are generally not serious and usually respond to nonspecific therapy, but the frequency with which chest wall pain is encountered prompts a review of the characteristics of the three major groups.

Chest pain due to intercostal neuritis produces pain along the course and distribution of one or more of the intercostal nerves. There is tenderness on pressure in the affected intercostal space or spaces, with three points of maximum intensity corresponding to the posterior primary, lateral cutaneous, and anterior cutaneous branches of the nerve, given off near the vertebral spines, the midaxillary region, and the costosternal articulations. There may be cutaneous hyperesthesia and the pain may be abolished temporarily by measures which produce cutaneous anesthesia such as spraying with ethyl chloride. Such measures usually do not relieve the pain of musculoskeletal origin.

Pain of muscle or skeletal origin is frequently considered under the single category of musculoskeletal pain but often it can be surmised that the etiology

* From the Cardiology Section of the Department of Internal Medicine, The Hertzler Clinic, The Hertzler Research Foundation, and the Halstead Hospital.

is primarily skeletal, arising in the costochondral, chondrosternal, manubriosternal, xiphisternal articulation. One example is Tietze's syndrome. Osteoarthritis of the spine and rheumatoid arthritis are frequent culprits, and in recent years it has been pointed out that ankylosing spondylitis frequently causes chest pain, sometimes with a radicular distribution mimicking intercostal neuritis.⁴

Pain arising in the chest wall musculature (herein referred to as chest wall myalgia) is the remaining major category of chest wall pain and is in fact the most common category. Inexplicably it has received relatively little attention in the literature. However chest wall myalgia is of major significance and should be considered as a diagnostic possibility whenever the diagnosis of angina pectoris is being considered and diagnostic electrocardiographic findings are not present. Even when diagnostic electrocardiographic findings are present the possibility of coexisting chest wall myalgia should be considered. The magnitude of the problem of chest wall myalgia was pointed out by Allison who found that 32 per cent of a group of 50 patients wrongfully diagnosed as suffering from coronary disease were instead suffering from pain of chest wall muscle origin. When acute, chest wall myalgia can simulate acute myocardial infarction, and when recurrent or chronic it mimics angina of effort. Chest wall myalgia may be difficult to differentiate from angina pectoris on the basis of history but certain characteristics, especially when present in combination, tend to point toward chest wall myalgia. The pain may be brief, momentary, and knifelike but more frequently lasts longer than typical angina. Thus it is more likely to last seconds or hours rather than minutes as does typical angina of effort. It is often described by patients as a soreness, aching, tenderness or tightness, at times well localized to a small area but usually diffuse. There may be radiation to the left arm but radiation to both arms simultaneously strongly favors myocardial ischemia as the etiology. Chest wall myalgia is usually not precipitated by factors that increase cardiac work such as general exertion, large meals, tachycardia, rises in blood pressure and emotional stress unless the exertion consists predominantly of exercise of the arms and chest wall muscles, or of heavy lifting. A common precipitating event in housewives is that of hanging clothes or operating a sweeper. Chest wall myalgia occurs more commonly late in the day when the muscles are fatigued, and in many instances the patient may be merely describing fatigue of the chest wall musculature, whereas it is widely appreciated that angina of effort is more likely to occur in the morning. Whenever a patient presents with a history of chest pain related to exercise, it is very important to in-

quire carefully as to the exact type of exercise which precipitates the pain. For example, chest pain which follows the climbing of stairs is very likely to represent true angina since it necessitates a great increase in cardiac work with minimal use of the chest wall muscles.

Emotional Factors

The clinician's acumen may be severely taxed in cases in which chest pain is precipitated by emotional stress. That emotional disturbance frequently precipitates angina is established fact. However emotional disturbance also frequently precipitates functional chest pain and myalgia. Prolonged muscle tension in anxious individuals may lead to discomfort which is misinterpreted as angina. Hyperventilation is common in anxious, emotionally upset individuals and the chest tightness, palpitation and sensation of dyspnea of which the hyperventilating patient complains may mimic the anginal syndrome. The skeletal muscle hyperirritability which occurs in the hyperventilating patient sometimes leads to painful spasm of intercostal and pectoral muscles which is misinterpreted as angina. Correction of hypocapnia by the inhalation of carbon dioxide or rebreathing from a paper bag should relieve these symptoms and enable one to make the proper diagnosis. The problem becomes complex when a patient with true angina also hyperventilates. This coexistence is encountered fairly commonly, presumably because the anxiety which accompanies coronary insufficiency tends to lead to hyperventilation.

When the history does not provide clear differentiation between angina pectoris and benign chest wall myalgia, the physical examination may reveal findings suggesting that the etiology lies in the chest wall musculature. Local muscular tenderness can often be elicited in chest wall myalgia and may provide evidence favoring this diagnosis. Certain maneuvers should be performed in an attempt to reproduce the pain, such as muscle stretching against resistance. A simple test is to have the patient raise the arms and press forward against resistance applied to the hands. In some cases turning the trunk or some sudden movement will reproduce the pain. Patients sometimes report that turning over in bed will reproduce the pain. It is rare that such trivial exertion in terms of cardiac work results in anginal pain.

Response to Therapy

Response to therapy is a most helpful differentiating point. Chest wall myalgia is usually favorably affected by salicylates, application of heat and injections of local anesthetic. Although nitroglycerin occasionally affects chest wall myalgia, prompt and

complete relief of pain rarely occurs. Therefore, it is mandatory to inquire carefully whether prompt and complete relief occurs when nitroglycerin is given as a diagnostic test or one may be misled into a hasty incorrect diagnosis of coronary artery disease on the basis of response to nitroglycerin. It should be kept in mind that nitroglycerin is useful diagnostically not only in its ability to produce prompt, complete relief of anginal pain once the pain has begun, but may also be used in another manner. When taken prior to exercise, nitroglycerin consistently increases the amount of exercise that can be performed without inducing chest pain. When nitroglycerin is taken before exercise and the amount of exercise required to induce chest discomfort is consistently increased by at least 50 per cent, a diagnosis of angina pectoris is strongly favored.

When a long term trial of nitroglycerin is given to the patient with recurrent chest pain, it must be made very clear to the patient that the use of nitroglycerin constitutes only a diagnostic test. If the patient does not understand that nitroglycerin is being used in an attempt to establish a diagnosis he may erroneously conclude that the diagnosis of coronary artery disease is already established. If the pain proves to be noncardiac in nature it may then be very difficult to convince the patient of the benign nature of his condition, and a chronic cardiac neurosis may result. However, if the patient is properly instructed beforehand, the physician should not hesitate to institute a diagnostic trial of nitroglycerin rather than to arrive at a hasty misdiagnosis. It is not infrequently impossible to establish the correct diagnosis during the first office visit or first hospitalization and repeated observation over a period of months may be necessary to arrive at the correct conclusion.

The frequent difficulty of arriving at a correct diagnosis prompts a re-emphasis of the value of the Master "two-step" exercise test. All too often, incorrect conclusions are drawn on the basis of a resting electrocardiogram and a Master "two-step" test should be performed in all questionable cases unless there is some contraindication to the performance of exercise. It is widely appreciated that the results of the Master "two-step" test are not always conclusive but the test nevertheless has considerable value. Caution must be observed to avoid over-interpretation of minor postexercise electrocardiographic changes. It must be remembered that a normal Master "two step" test by no means rules out a diagnosis of coronary artery disease. The use of continuous radioelectrocardiography increases the number of positive responses from exercise testing,² and the use of the exercise apexcardiogram may surpass the yield of the exercise electrocardiogram.³

Coexistent Angina and Chest Wall Pain

Confusion sometimes arises because of the coexistence of angina pectoris and chest wall pain. The frequent coexistence of angina and chest wall pain is not sufficiently appreciated and has not been adequately emphasized in the literature but clinical practice reveals many patients who exemplify this association. McElroy confirmed this clinical impression. In a study of 303 patients with angina, 51 per cent were found to have coexistent chest wall pain, whereas only 23 per cent of a control group of patients of similar age without heart disease had chest wall pain. It has not been proved why chest wall pain is more common in patients with coronary disease than in the general population, but the association sometimes produces a very puzzling situation. The ischemic pain may be masked by the chest wall pain, and a meticulous search for coronary disease should be instituted in patients with chest wall pain. Even more commonly, the episodes of noncardiac pain are misinterpreted as angina, and a patient with mild angina becomes unnecessarily incapacitated because of coexistent chest wall pain. It is very important to emphasize to such patients that many of their episodes of chest pain do not represent angina due to myocardial ischemia, and that the patient himself must learn to differentiate between the several types of pain. Although the anginal syndrome varies considerably from patient to patient, the pattern of discomfort in any given patient is usually fairly constant and readily recognized by the patient. Coexistent chest wall pain is usually described by the patient as different from his angina when he is encouraged to attempt to make the differentiation.

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Wars are easy. Peacetime is when the trouble starts.—*Jean Anouilh*

Nothing helps scenery like ham and eggs.

—*Mark Twain*

Biliary Tract Disease?

Congenital Absence of the Gallbladder and Cystic Duct

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ABSENCE OF THE GALLBLADDER is a rare anomaly occurring as the result of failure of development of the gallbladder bud or by failure of the solid stage of the bud to recanalize in the hepatic diverticulum in the 3 to 4 mm. embryo. When the general surgeon is confronted with such an anomaly he usually must resort to a course of treatment supported by his past experience in the treatment of common duct pathology, for there is little in the way of definitive therapy in the surgical literature to aid him. An attempt to correlate the symptomatology of gallbladder disease in an individual who has no gallbladder is, to say the least, a little frustrating. It is obvious that further diagnosis is needed and this almost invariably means common duct exploration in some form.

History

That the anomaly is not a modern find is well documented. Stolkind reports that Aristotle "found in some individuals there was apparently a gallbladder attached to the liver, while in others there was none." Vanderpool et al state that Courvoisier reported 25 cases in 1890. The first recorded case report of congenital absence of the gallbladder was made by Lemery in 1701.

In 1894 Eshner reported a case in Philadelphia and Latham in 1898 writing in the Proceedings of the Anatomical Society of Great Britain and Ireland reported a case from the British Isles.

In 1962 McIlrath et al reviewed the world's literature and were able to find (including their own ten cases) 143 reported cases of absence of the gallbladder and cystic duct.

Ferris and Glazer in a recent report from the Mayo Clinic add four cases to the literature. They report the incidence of absence of the gallbladder and cystic duct to be 2:10,000 cases in 21,525 cholecystectomies and cholecystostomies performed from 1945 through 1963. Many more cases of absence of the gallbladder could undoubtedly be found, both reported and unreported, but still the incidence must be rare.

Case Report

A 47-year-old white woman was admitted to the

Halstead Hospital complaining of midabdominal pain, described as a "dull ache" radiating through to the back. There was no history of fatty food intolerance or epigastric or subcostal distress. A routine gastrointestinal series revealed a nonvisualizing gallbladder. A normal esophagus, stomach and duodenum were found. Barium enema showed diverticula and spasm of the sigmoid colon. A repeat

A case of congenital absence of the gallbladder is reported. Symptomatology ranges from minimal findings to those resembling acute cholecystic disease with or without common duct complications. Operative cholangiogram is mandatory to delineate completely the contents of the common duct and treatment depends to a considerable degree on this finding.

attempt at visualization of the gallbladder again failed. The patient was dismissed for ten days because of a problem at home and then readmitted for elective cholecystectomy for a nonvisualizing gallbladder.

Abdominal exploration through a right subcostal incision revealed congenital absence of the gallbladder. The common duct was carefully explored from the right and left hepatic ducts to the duodenum without finding any evidence of a cystic duct or of a gallbladder. A cholangiogram revealed normal common duct structure and no evidence of an intrahepatic gallbladder. There was no evidence of other anomalies in the upper abdomen and a careful search to the left of the midline and along the superior border of the pancreas showed no abnormalities. The common duct was not drained and the patient's postoperative course was normal. She still has an occasional ache.

Comment

Absence of the gallbladder has been found in association with other anomalies. Zimmerman reports a

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case of a 70-year-old patient with bilateral polycystic disease of the kidneys and congenital absence of the gallbladder. The patient also had carcinoma of the pancreas. Reid reports this anomaly associated with a high caecum and absence of the ascending colon. Gerwig and associates reported two or more congenital anomalies in four of their six cases. There were four infants and children in this series who showed cardiac defects, tracheo-esophageal fistulas, imperforate ani, cleft plate, skeletal deformities and genitourinary abnormalities. Apparently other anomalies are found in enough cases to warrant a most careful intra-abdominal search for other unusual congenital malformations.

Choledocholithiasis has been reported in the absence of the gallbladder. Carnevali and Kunath reviewed 68 surgical cases, 50 per cent of which showed either stones or dilatation of the common bile duct. The surgical treatment of choledocholithiasis needs no elaboration here; however, one individual reported that the common duct was drained for two years following removal of stones. This seems an unusual circumstance.

The preoperative diagnosis of absence of the gallbladder is almost never made since it is common to find a nonvisualizing gallbladder due to cystic duct obstruction (inflammation, stone or neoplasm), packed stones in the gallbladder and virtual obliteration of the gallbladder because of a severe repeated inflammatory process. The diagnosis is invariably made at surgery or at necropsy. One's index of suspicion would be high if he just happened to have one or two such cases.

At surgery, after adequate dissection of the common duct and hepatic ducts in a search for the cystic duct and gallbladder, it is imperative to perform an operative cholangiogram. An intrahepatic location of the gallbladder is not uncommon and such a gallbladder, if it were diseased, would certainly cause a continuation of the patient's preoperative symptomatology. The common duct also must be carefully examined throughout its accessible length for pathology because the symptoms a patient describes may originate in the common duct.

The symptomatology of absence of the gallbladder is quite varied and may deviate from a mild pain to symptoms of acute cholecystitis, chronic cholecystitis and common duct obstruction with stones. A few individuals have exhibited chills, fever and jaundice suggesting ascending cholangitis. Jaundice is reported in many cases because of the presence of common duct stones. This fact is quite interesting because it was thought at one time that stones could form only in the gallbladder because mucin from the gallbladder mucosa was necessary to the formation of stones.

Treatment

The treatment of these patients is dependent upon the findings at surgery. If the common duct is dilated or if the patient is jaundiced, a stone is usually the offender although carcinoma may well be the obstructing agent. In any event, common duct exploration is mandatory. Prolonged T-tube drainage has been used by some, but this is thought unwise. Vanderpool et al report sphincterotomy in one case with good results. In the individual with no jaundice, a normal appearing common duct, a normal operative cholangiogram, and a vague history of gastrointestinal distress, it would seem that a policy of nonsurgical intervention of the common duct might be wise. These patients would probably respond to good medical management.

The surgeon confronted with absence of the gallbladder and with gross evidence of choledochal disease or with a diseased intrahepatic gallbladder has his problem delineated. It is in borderline cases where one is dealing with vague symptomatology from the patient's history and where surgical exploration reveals apparently normal structures (except absence of the gallbladder) that the treatment problem is obscure.

Summary

A case of congenital absence of the gallbladder is reported. The embryological defect is either lack of development of the gallbladder bud or failure of the solid bud to canalize. Symptomatology is varied and ranges from minimal findings to those resembling acute cholecystic disease with or without common duct complications. The association of other congenital anomalies is noted. Operative cholangiogram is mandatory to delineate completely the contents of the common duct and the treatment depends to a considerable degree on this finding.

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Prostate Surgery—

A Review of 1,200 Operations

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IN LOOKING OVER THE FIELD of urology for a subject for this paper, we felt that no problem is so interesting to diagnose and so intriguing and amenable to correct surgical treatment as that of the obstructive hypertrophied prostate gland. It seems important that the general medical profession should be kept informed of the progress that has been made in this field, that their cooperation, so necessary for the care of the patient, may be maintained.

With this in mind the Urology Department of the Hertzler Clinic reviewed its experiences with 1,200 prostatectomies done at the Halstead Hospital.

The four standard methods of prostatectomy were performed in operating this series of cases: transurethral resection, transvesical or suprapubic, transcapsular or retropubic and perineal, both simple and radical.

The preoperative work-up consisted of chest x-ray, KUB x-ray, EKG, renal function studies, C.B.C., intravenous pyelograms and cystoscopy where indicated.

Our medical department evaluates all urological-surgical patients preoperatively from a cardiac and respiratory standpoint. Patients who have had heart attacks or strokes in the preceding three to six months usually have surgery postponed until a later date. Patients who have elevated urea nitrogen levels or who are in electrolyte imbalance are treated until the renal function has improved or the electrolytes are in balance. Intravenous mannitol has been used to lower the urea level in some cases. Blood volume studies are carried out on the "Volemetron" both preoperatively and postoperatively. At times the renogram and the renal scan are used when indicated. Many of our older prostate patients have been classified as grade 3 to grade 4 surgical risks by our medical department. We have used spinal anesthesia in many of the poor risk patients but have found sodium pentothal quite satisfactory in most cases.

Of the 1,200 prostatectomies in our series, 1,021 were transurethral resections; 143 were suprapubic prostatectomies, and 18 were retropubic operations. Four of the retropubic were radical prostatectomies for cancer of the prostate. There were 18 perineal

Few now question the generally accepted belief that no patient is too old to have prostate surgery when it is necessary. The important factor in determining the surgical risk and physical condition of the patient is not his chronological age, but his physiological age. The cardiac patient may be safely operated if proper medical care is given before operation and during the post-operative recovery period.

prostatectomies and six of these were radical perineal operations for cancer of the prostate.

In this series, 98 prostates were reported as malignant and 1,102 were listed as benign prostatic hypertrophy. One case of leukemia of the prostate was reported.

The largest adenoma in this series weighed 260 grams and was removed suprapubically. If the weight of the adenomas are grouped in 20 gram increments, there were 616 weighing under 20 grams; 283 weighed between 21 and 40 grams; 158 weighed between 41 and 60 grams; 33 weighed between 61 and 80 grams. There were 18 weighing between 81 to 100 grams, while 17 weighed between 101 and 120 grams. The weight of five were between 121 and 140 grams, while one fell in the 141 to 160 gram group; 68 weighed 161 to 180 grams. The weight distribution curve is thus skewed to the left, as one would expect. Patients are more aware of "prostate trouble" and also they are referred by their physicians before their prostates have grown to a large size, and in most cases before irreparable damage to the urinary system has ensued. It should be pointed out that comparing the weight of "closed" versus "open" prostatectomy is not strictly valid since the electric current in transurethral resection reduces the weight of the removed tissue by its thermal coagulation and dehydration action. In general the smaller prostates were subjected to transurethral resection; the larger prostates were removed by open operations.

When needed, our patients received associated surgery such as litholapaxy, revision of the bladder

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neck, diverticulectomy, suprapubic cystolithotomy, hydrocelectomy, orchietomy, and removal of bladder tumors, though not necessarily at the time of prostatectomy.

Open, perineal biopsy was done on early suspicious-feeling, well defined nodules in cancer candidates suitable for radical surgery. We also used the Franklin modification of the Vim-Silverman needle for perineal punch biopsy of the prostate when hard indurated prostates were found. Transrectal biopsies are not done and in our hands do not offer any particular advantage over the perineal punch biopsy. However, we have had negative biopsies in patients who on follow-up were found to have carcinoma of the prostate. We inform the patient that a negative biopsy obtained by needle never rules out the possibility of carcinoma of the prostate. We repeat biopsies or perform transurethral resection when indicated. Orchietomy is never done in the absence of a positive tissue report proving cancer of the prostate. An increased acid phosphatase and osteoblastic metastasis is not sufficient proof of carcinoma to warrant orchietomy. However, we do not hesitate to institute stilbestrol therapy of 5 mg. per day in an elderly patient when he clinically has carcinoma of the prostate.

Most patients had bilateral vasectomies done at the time of operation except when refused. Perineal urethrostomy, or internal urethrotomy was not done routinely. While not often found necessary, such a maneuver was used in patients who had small caliber urethras, short suspensory ligaments, or when a resectoscope sheath could not be easily accommodated. There are many causes but stricture formation has resulted from the use of large sheaths in small urethras. Anatomically, the narrowest point of the normal urethra is the meatus; just proximal to this is the wider fossa navicularis. Since we feel a number of strictures at the meatus can thus be minimized, we perform a urethral meatotomy in a large number of prostatectomies. It should be pointed out that the "nozzle effect" may be lost by meatotomy. Other factors that we believe minimize stricture formation are: limitation of resection time to one hour; changing to a smaller size sheath during the operation (if the original sheath does not glide easily in the urethra); the use of non-soluble lubricant on the sheath itself (such as plain vaseline); and the use of an antibiotic ointment mixed with the lubricating jelly (such as chloromycetin). Furacin-HC urethral inserts are introduced into the urethra at the first sign of meatitis or urethritis.

Antibiotics are usually administered since many of these prostates have microabscesses which are opened during the process of transurethral resection,

as well as the possibility of opening the venous sinuses of the prostatic capsule. We have not experienced to any extent, postoperative bacteremia chills, or the feared gram-negative septicemia which is being reported in increasing numbers in urological cases. There was a total of 19 deaths in the series of 1,200 prostate operations; 11 of these followed transurethral resection, six after suprapubic prostatectomy in 143 patients. Of the 18 retropubic and 18 perineal operations there was one death in each type of operation.

During the past two years we have used the fiber optic system of illumination exclusively in performing transurethral resections and litholopaxy. The fiber optic system transmits images via thin flexible fibers of glass that are stacked in bundles. This innovation allows more light to be delivered to the operator, the light is cold to the patient and there are no tiny bulbs which burn out frequently. For the first time, illumination is good enough so that a colored motion picture of the transurethral resection of the prostate can be obtained. Urethrosopes are being developed so that the inside of ureters and kidneys may be visualized. The improved vision permits faster and more accurate resection. Even with low pressure irrigation the arterial bleeding can readily be identified and promptly coagulated. Fiber optics are a great advance in endoscopic surgery and a triumph of modern optical science which urologists should not fail to use to their advantage.

In our postoperative care we maintain adequate urinary output by giving intravenously two liters of glucose and water daily until the drainage clears. We have the transurethral patient out of bed either the same day or the day following surgery. When the urinary drainage clears the catheter is removed, which is usually in two to three days. We have what we call a battery of bedside bottles placed in the patient's room and a separate bottle is used to collect each voiding. In this way we can easily determine how much urine is passed at each voiding and observe it for blood or blood clots. The bowel movements are kept soft by a mild laxative and the patient is requested not to strain.

We keep our patients in the hospital until about 14 days after the operation. We are well aware of the increasingly popular trend towards shorter and shorter hospital stays, but we cannot logically equate this with better and better surgery. Many of our patients come to us from a distance of several hundred miles, and we know from experience that they often bleed on the 10th to 14th day after operation. Often rather severe secondary bleeding can be controlled by simple measures in the hospital, such as catheter

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Then and Now

A Review of Medical Gynecology

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MY YEARS AS A PHYSICIAN have been particularly interesting for they have spanned the pre-antibiotic, pre-antihistaminic and the pre-steroid eras of medicine. To paraphrase the TV commercial—we had adrenalin, thyroid extract, pituitrin and insulin to use. During my senior year in medicine the value of liver in the treatment of pernicious anemia was reported and I witnessed the first use of it at Barnes Hospital, St. Louis, in the spring of 1927. The previous summer as a junior student in Halstead, I had taken a blood count on a patient in her home who died of pernicious anemia a few days later. The drama of the recovery of the St. Louis patient is indelible.

The activity in laboratories over the world was at high pitch in the 1920's as investigation of ovarian and pituitary functions was under way. Dr. Edgar Allen¹ and Dr. Edward A. Doisy⁷ were working at Washington University. In 1923, Drs. Doisy and Allen⁸ had proved that by injecting an ovarian extract into immature female rats, they came into estrus in 48 hours. They ran into technical difficulties they could not surmount.

The year I graduated from medical school (1927) Evans and Corner published papers correlating the pituitary gland with ovarian secretion. There was disagreement between them for their extracts did different things. One stimulated the ovarian follicle, FSH; the other the corpus luteum, LSH. It was later learned both were correct for one was working with an acid extract and the other with an alkaline extract. This same year Aschheim and Zondek reported the presence of estrogen in urine, although the reaction was a weak one. The Aschheim-Zondek test for diagnosis of pregnancy became a laboratory tool. It took until 1935 to learn that three estrogenic hormones are available, and testosterone also was isolated by this time.

As reports of the experiments on the androgens were published, "Dr." Brinkley became cognizant of them and at Milford, Kansas, testicles from roosters were transplanted subcutaneously in the male species. Milford became a mecca for those who wished to become rejuvenated; they came from all parts of the United States and from some foreign lands. In fact, the entire state of Kansas wished rejuvenation and

except for the technicalities incidental to a write-in candidate, "Dr." Brinkley would have been Governor of the State in the 1930's.

Early in 1940 the relationship of endocrine extracts to steroids was determined and we are all aware of the boon this has been in the practice of replacement therapy. This made possible the synthetic pro-

This article relates the history of replacement medications of glandular extracts and steroids in medical gynecology over a period of 40 years.

duction of glandular extracts and the cost per person became practical. One example—in the use of progesterone for habitual abortion. The first extract available for patient use, cost \$200 per gram. The first patient to receive this medication in Halstead received the extract in 1947. She was a diabetic⁹ and had aborted five times. The cost of progesterone extract for use in this patient was estimated to be \$250. The patient and her husband were willing to spend that money on the chance of a pregnancy. Luckily they eventually left the hospital with a live baby. The cost of the steroid now makes treatment available to any patient.

In the 1940's, also, the biochemist, Russell Marker, became convinced that sex steroids were plentiful in plants; that sarsaparilla, yucca, agave and true yam contained the compound sapogenin, each molecule of which included the basic four-ring nucleus of carbon atoms typical of steroids; the wild yam yielded the greatest amount. This man is or was a very interesting character and his life history is that of a thriller. He may or may not still be alive.

The development of ACTH and cortisone after it was learned that Addison's disease is a deficiency of adrenal cortex, was a dramatic one. The program to isolate and manufacture the adrenal steroids—and by now, 46 have been isolated—was greatly stimulated in 1941 when it was rumored the Nazis were buying adrenal glands in Argentina to use to "hop up" their pilots to enable them to fly at 40,000 feet. This was not the fact, but the U. S. researchers in this program did not know it until after the war was over.

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Before the steroid was isolated, G. D. Searle & Company set up a battery of perfusing apparatuses which occupied an entire building. They perfused beef adrenals to supply the demand until the synthetic products could be obtained.

The male steroids revealed not only androgenic qualities but anabolic properties also. It is of value in mineral metabolism and *na* balance. Current experimentation has revealed its use as a blocking agent. Very soon it will be possible to beam treatment for a certain organ to that particular organ and bypass side effects of medications.

These few examples indicate the tremendous amount of activity required of researchers and manufacturers of replacement glandular hormones. The largest of our endocrine glands, the pancreas, weighs three ounces. The pineal gland is smaller than the head of a pin; the thyroid, four parathyroids, pituitary, twin adrenals, thymus and paired ovaries altogether weigh between four and seven ounces. The discovery of the action of each gland and its development, and the manufacture of its secretion for therapeutic use is a thrilling detective story which puts to shame the efforts of E. Stanley Gardner.

Dysmenorrhea

All of the above is by way of introduction to a synopsis of the practice of medical gynecology since 1927. We'll mention, first, dysmenorrhea. It had been observed over many years that after a pregnancy, menstrual cramps were less frequent than before. So the old family doctor comforted his patient complaining of menstrual cramps, by giving her the benefit of this observation.

A thyroid-ovarian relationship was known. Kendall had isolated thyroxin in 1915. A BMR was performed on any patient with clinical evidence of hyper- or hypothyroidism and available treatment prescribed. The vast field of subclinical cases was never touched. In those cases where no definite etiology could be determined, small doses of iodine were given empirically. Antispasmodics and analgesics completed the armamentarium. It was in the early 1930's that the first oral ovarian extract under the trade name *Varium* became available. It was effective in the treatment of some patients with menstrual cramps and was prescribed throughout the menstrual cycle. We now have progesterone and the first reports^{3, 17} of retroprogesterone as definitive specific replacement therapy for premenstrual use for alleviation of dysmenorrhea.

Menorrhagia

Menstrual bleeding due to extrauterine causes was a problem. The usual contraceptive method then, and to some extent now, was coitus interruptus;

many of the patients who practiced this procedure experienced menorrhagia or metrorrhagia. The resultant local edema with symptoms of heaviness and soreness in the pelvis, at first coital and postcoital, later developed as a more or less constant complaint, were relieved by the "tonic" I still find useful—namely hydrastis and IQS plus a sedative. The local symptoms are combined with those of the autonomic nervous system, namely irritability of disposition and subsequent depression. These patients were and still are advised a four mile hike daily for there is no medication that will relieve pelvic congestion like a long hike. When normal circulation is present and the autonomic nervous system performs normally, the glands of internal secretion respond in like manner and medical treatment is temporary.

Those patients with prolonged bleeding due to pituitary or ovarian dysfunction and who could not be controlled medically came to surgery. First a dilation and curettage was used. If bleeding persisted and chronic anemia developed, more definitive surgery was advised. Since a hysterectomy usually disturbed the circle of circulation to the ovaries and the side effects of this procedure were worse than the disease, especially in the younger woman, the fundus of the uterus was removed to cut down the total surface of the endometrium. It saved the function of the ovaries and controlled the amount of bleeding. Now either large doses of estrogen or progesterone stimulates the pituitary to controlled secretions of FSH or LSH and the bleeding is usually controlled by the use of one of these medications.

Hot Flashes

The discovery of estrogen was a boon to the woman with hot flashes. I used it initially as cyclical therapy. I have always used it along with large doses of vitamin B as regular medication, because vitamin B is conjugated in the liver as estrogen. Some patients do better when estrogen is combined with small doses of testosterone.

The frequency of arthralgias associated with ovarian function is common knowledge. There were those patients who recovered from arthritis during pregnancy. Many, many menopausal women are arthritics. Sometimes estrogenic, sometimes progestogenic treatment gives dramatic results.

It was learned that pruritis vulvae and formication are related to estrogen depletion and replacement therapy with estrogen has been a boon to the patient with this condition.

General Metabolism

Since steroids are available, those working in research laboratories have pointed out that many body functions are related to estrogen metabolism.²⁰ With

loss of estrogen, a negative nitrogen balance occurs. Voluntary muscles lose strength. There is loss of weight and energy.

In hypercholesteremia estrogen lowers the serum lipid levels. Hypertension¹⁰ may be related to estrogen loss. In osteoporosis the osteoblastic cells are under direct estrogen control. The more estrogen, the more osteoblastic activity. Not only is there less matrix due to lack of protein and impaired osteoblastic activity, but there is excessive destruction due to continuous osteoclastic activity. A negative balance of Ca and phosphorus occurs with excessive amounts of these in the urine. There is an impairment of CHO metabolism; two CHO enzymes, hexokinase and glucokinase are increased because of lack of inhibiting estrogenic influence on the pituitary. This is considered a possible cause for the increased incidence of diabetes at the time of the menopause.

Endocrine disorders occur through the pituitary gland. It is influenced by certain neuro-secretions released from the hypothalamus into the hypophyseal portal system to aid in regulating the secretory activity of the anterior lobe cells. If this occurs suddenly, as in a tumor or postpartum embolus, Cushing's syndrome develops. In the aging female the syndrome develops over decades.⁶

An imbalance of the nervous system is related. The ductless glands exercise varying degrees of influence on the central or voluntary nervous system (including the hypothalamus) and the autonomic nervous system. Although they are interrelated, the autonomic nervous system is seemingly more disturbed, for it is the nervous network which, in conjunction with the autonomic nuclei of the brain, controls the vital life processes of the organism over which there is no voluntary control. It is comforting to the older physician that this has actually been proved in the laboratory for he treated many patients in years past whose complaints suggested such a relationship.

Among physiologic activities under the autonomic control are the emotions and the sense of physical and mental well being. Also the cardiac and respiratory rhythms, the digestion of foods and the marvelous chemical reactions which occur in the liver. As a result of the functional disturbance of the ovaries and interrelated glands and the imbalance of the nervous system, there is a multiplicity of subjective symptoms.¹⁶

Last but not least there is the relationship of estrogen depletion to the incidence of coronary heart disease in women. Schlesinger and Zoll found coronary occlusions: (1) six times higher in men than women 40 to 59 years of age; (2) two times that of women 60 to 79 years of age. Wessler injected and dissected 1,011 consecutive hearts and found: (1) complete occlusion of one or more major arteries in men twice

that of women in the fourth, fifth and sixth decades; one third greater in the seventh and eighth decades; (2) narrowing (x section lumen of major artery) higher in men than women up to the sixth decade (50 to 75 per cent); (3) bilateral oophorectomy increases incidence of coronary heart disease but the per cent is less than in men.¹⁵ It develops in one fourth of the women with bilateral oophorectomy. All of this indicates that the menopause is likely a deficiency disease and should be treated as such.²¹ In the years in which life expectancy of women was 40, this was no problem. When we now approach the problem of treatment, we are beset with problems relative to the steroid needed and the dosage. For example, some women may have symptoms equally disturbing when on prolonged estrogen therapy as those deprived of estrogen. As a rule an ovariectomized patient needs a dosage twice as great as a woman who has not been so operated upon.

One patient with hypercholesteremia became miserable with breast and genital swelling on .1 mg. stilbestrol daily after one week of therapy. She refused to take another dose of medicine. A number of patients on the "pill" have developed the same syndrome of complaints as we acquaint with the chronic pelvic congestion after treatment of 18 to 24 months. Some patients with extreme fatigue give a wonderful response to larger doses of estrogen and progesterone than we have been accustomed to use. Another patient with the same history and findings may have very little or no response to the same medications. A patient was recently admitted to the hospital after the referring physician had given her a diagnosis of progestational deprivation. However the progestational medication prescribed had not relieved her symptoms.

The Lin's of Cleveland, and Wilson, Brevetti and Wilson²¹ of New York have worked out a vaginal cytogram and maturation index respectively in an attempt to work out the steroid to prescribe and the dosage required by an individual patient. The methods are crude at best; e.g., the Lin's method requires two cytograms weekly, and would be impractical to use in Halstead.

Comment

Our problem is to determine the specific replacement needed since estrogens, progesterone and retroprogesterone are now available for oral use. As replacement therapy, a method which will supply medication on a regular basis is considered superior to an overwhelming dose given intermittently.

We anticipate and will welcome a more definitive method of determination of dosage for each patient who needs replacement therapy in the menopausal years and thereafter. It is possible that this will oc-

cur in the field of immunoelectrophoresis. This would give accurate information relative to the steroids involved and estrogens and progesterones have many components. This is an expensive method at present. If it answers the questions, a less expensive method will evolve as it has in the past. Our job to help the aging woman to be a more comfortable and healthy individual will then pay higher dividends.

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Prostate Surgery

(Continued from page 15)

drainage and irrigation. In cases of fibrinolysis due to cancer of the prostate, Amicar has been used with impressive results. However, thrombophlebitis, or transient central nervous system signs suggestive of cerebrovascular accident, have been seen during its use.

Few now question the generally accepted belief that no patient is too old to have prostate surgery when it is necessary. The important factor is not the chronological age of the patient, but the physiological age that counts. Some 50-year-old men are older than some 80-year-old men, as regards surgical risk and physical condition. The cardiac patient may also be safely operated if proper medical care is obtained before operation and during the postoperative recovery of the patient.

Congenital Absence of Gallbladder

(Continued from page 13)

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In 1964, ethical drug manufacturers introduced 162 new products to the market, 51 fewer than in 1963, though they spent over \$30 million more (\$298.1 million) on research.

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Adverse Drug Reaction

Thrombocytopenic Purpura Due to Pronestyl®

ROBERT P. STOFFER, M.D., *Halstead**

MEDICATIONS USED in the treatment and prevention of cardiac arrhythmias lead to a variety of side-effects. The present report describes a thrombocytopenic purpura presumably caused by procainamide (*Pronestyl®*). Clot retraction studies were helpful and useful in determining the offending drug, as well as demonstrating its presence in the serum on subsequent examinations.

Case Report

A 70-year-old man was admitted to the hospital for the seventh time in three years. This time he was admitted because of the symptoms of spitting up blood and the presence of petechial lesions, especially on the legs, of two days' duration. He had no previous hemorrhagic phenomena in his history. The only history of adverse reaction to drugs previously was to penicillin. The patient's clinical diagnosis included bronchial asthma, pulmonary emphysema with cor pulmonale, congestive heart failure, and a history of cardiac arrhythmia with atrial fibrillation and multiple extra beats. Medications taken at the time of the onset of symptoms included: Pronestyl® (procainamide), Lanoxin®, Brondecon, Dainite tablets, and prednisolone in small dosage. He occasionally took Diuril® but was not taking it at the time.

On physical examination the patient was a thin, asthenic man with a blood pressure of 120/80, pulse 108, respiration 32, and a normal temperature. Purpuric spots were noted on the arms and legs. The fundi and other EENT examinations revealed no hemorrhages, purpuric spots, or other abnormalities. A few rales were present in the left lung base; the heart was regular; no murmurs were present. There was no hepatomegaly, splenomegaly, nor adenopathy.

Laboratory studies on admission showed the urine to be loaded with red cells, and a 2+ albumin. The platelet count was 12,000 hemoglobin 13.2 Gm., hematocrit 43, wbc 15,800, with a shift to the left. Prothrombin time 14.5 seconds (control 14 seconds); clotting time nine minutes.

One unit of fresh blood controlled the hemoptysis and the hematuria. He was given up to 80 mg. of prednisolone daily. On subsequent days the platelet

count was 10,000, 5,000, 7,000, 32,500, 97,500, and 67,500. During his hospital course the patient developed purpuric lesions in the mouth and on the lips and tongue. He was discharged on the 16th hospital day without developing a severe cardiac arrhythmia or

A patient developed a thrombocytopenic purpura presumably due to Pronestyl® (procainamide). Simple clot retraction studies were helpful in identifying the offending agent.

other abnormality. At a subsequent admission he died in severe congestive failure and cor pulmonale (about one month later).

Comment

Clot retraction studies were done with blood obtained on admission and on subsequent days, including follow-up after hospital discharge. Saturated solutions of the drugs taken by the patient were mixed with 2 ml. of a donor's freshly drawn blood and 0.2 ml. of the patient's serum or controls (donor's serum or physiologic saline). Clot retraction occurred in all the tubes except that one containing the procainamide solution and its serum. Although this is a rather gross method, it may identify the offending drug. The saturated solution of each drug is not physiologic (as regards body fluids), but the method is helpful, particularly when multiple drugs are involved in the treatment of a seriously ill patient. Positive tests were subsequently obtained on the patient's serum at follow-up visits, including the period when he was on high steroid dosage. Further tests in regard to the immune process and its mechanisms were not carried out.

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Your Dental Consultant

*. . . Can Be of Greater Assistance Than
Is Generally Realized*

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WITH THE OFFERING of Blue Cross-Blue Shield coverage for dentistry in the hospital there may be more of this type patient admitted. This development fits in with the public's general acceptance of the super-market concept where the hospital renders a complete health service. The American Dental Association is working hard in conjunction with the American Hospital Association to educate and encourage dentists in use of hospital facilities. An important by-product of this will be improved dental care for all type hospitalized patients. The increased numbers of geriatric patients with high frequency of chronic, long term illness, present a special problem. In cases of patients with cerebral accidents their mouths are properly cleared of prosthetic appliances. The teeth shift if not supported at their usual contact points. If complete dentures are worn continuously the covered tissue assumes a compressed thickness. When an attempt is made to return these appliances to the patient's mouth they experience difficulty. Special nursing care is required to maintain good oral hygiene for handicapped patients. Comatose patients are often mouth breathers with resultant drying of the oral mucosa. With padded tongue blade between the teeth opposite the side to be cleaned, disposable finger cots with dilute mouthwash may be used to massage tooth and intra-oral surfaces.¹ Most obvious of dental consultations involve patients with digestive complaints who present insufficient mastication structures. The dental consultant can rule out sialolithiasis when there is swelling in the ducts of glands of the mouth. Intra-oral roentgenograms are used to discover chronic foci of infection that may contribute to low grade temperatures. Electric pulp tests are used to verify findings after careful dental history is obtained.

Oral Signs

The dentist's opportunity to inspect the buccal mucosa results in valuable diagnostic aid. Its normal characteristics are thin, non-hornified, highly vascular, stratified squamous epithelium, pinkish gray in color.² In the geriatric patient, ectopic sebaceous glands may appear as scattering of yellow grains called Fordyce's

spots. They are asymptomatic. The raised string of gray buccal tissue opposite to occlusals of the teeth is hyperplastic epithelial keratosis as the result of functional irritation. It is in this area that leukoplakia, usually associated with heavy smoking, may be noticed. An exfoliative cytology test is recommended for differentiation. If this test is positive a tissue biopsy is completed for confirmation. Bluish-white spots surrounded by diffuse red patches in children's

The dentist in the role of consultant to the physician provides a valuable source of information and specialized treatment. A dental examination gives the opportunity to utilize symptoms of the mouth in diagnosis of generalized disease.

mucosa are Koplik's spots, always prodromal of measles. Other white lesions may be moniliasis, lichen planus, or allergic reactions. A pale buccal mucosa may suggest anemia; a cyanotic mucosa—cardiac disorder or polycythemia. Brown spots of melanin pigmentation often occur in hypoadrenalism. When these occur on the mucosa at the corner of the mouth they may indicate intestinal polyposis. Hematoma, hemangioma, or telangiectasia (dilated capillaries) are red. Scarlet red petechiae, no bigger than a pinhead, not raised, which do not disappear when compressed, may reveal the presence of systematic blood dyscrasia. When blood elements and vessel walls seem normal they may indicate fault in the hemopoietic system such as disease of the bone marrow, spleen, liver, thymus, and lymph nodes.

A dental examination will provide differential diagnosis at the corners of the mouth where cracking of the epithelium with resultant red soreness is noted. Is this a vitamin deficiency? It can be the result of closed bite relationship associated with ill fitting complete dentures. The subject of closed bite relationship usually involves temporo-mandibular (T-M)

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* Dental Consultant, The Hertzler Clinic.

A Handful of People

A Group-oriented, Comprehensive Psychiatric Care Center in a General Hospital

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In the last year of the First World War Freud^a took a gloomy look at some of the limitations of psychiatry, then offered a hopeful prediction for the future. Speaking at Budapest, he said: "We are but a handful of people, and even by working hard each one of us can deal in a year with only a small number of persons. Against the vast amount of neurotic misery which is in the world . . . the quantity we can do away with is almost negligible. . . . One may reasonably expect that at some time or other the conscience of the community will awake . . . the task will then arise for us to adapt our technique to the new conditions."

THE 1960S MAY WELL become known as a time when men were concerned with increasing the availability of psychiatric help. This concern has led to the adoption of new patterns of care, and this is still an evolving process.

Trends in institutional psychiatry today include: (1) the provision of psychiatric facilities in general hospitals; (2) the use of group therapies and the therapeutic community; (3) the setting up of small decentralized units in close touch with the surrounding communities; and (4) the operation of as many comprehensive care centers as can be kept staffed and financially solvent. It is the purpose of this paper to describe the functioning of a treatment center conforming to these concepts.

Organizational Pattern

Writing in the *Lancet* in 1962, Cohen and Haldane discussed the trend in England, following World War II, towards the moving of psychiatry into the general hospitals. At first this was seen only in the setting up of outpatient clinics, but a newer feature was the creation of inpatient psychiatric units within the general hospital, and the total abandonment of new mental hospital construction. In the process of creating these inpatient units, certain special needs of the psychiatric inpatient, as compared with the other hospital patients, came to be recognized. One was for the provision of a new, often challenging, milieu, differing from that at home in important respects. Another was for the involvement of the rela-

tives in the treatment program. It became necessary to combat the tendency of nurses and administrators to introduce into the psychiatric ward conditions, fostering regression, which were appropriate in other areas of the hospital but harmful to the psychiatric patient. The need was seen for "a controlled social environment reproducing as far as possible the problems, tensions, and obligations of ordinary social life," and, the authors added, "to achieve this, a well-integrated team of doctors, nurses, occupational

In recent years there has been more interest in the wider provision of psychiatric early care, and patterns are changing. A psychiatric comprehensive care unit in a rural general hospital is described, which embodies some of these newer patterns, and a brief look is taken at some of the theoretical factors involved.

therapists, psychologists, and social workers is needed." The therapeutic community set up in many such programs, and the active interplay of feelings between patients and staff, between patients and other patients, and at times even between team members, is something so different from ordinary general hospital routine that a shock wave of resistance is often set up in the hospital as a whole. A noisy, disturbed patient, bumping sounds coming from upstairs, reports of damage to hospital property, cause exaggerated concern in the non-psychiatric areas of the hospital. Cohen and Haldane, recognizing this familiar phenomenon, saw it as due to uneasiness in regard to mental illness and state: "For this reason we urge that the psychiatric department should have the maximum autonomy within the general hospital."

In particular, they saw the need for a nursing staff with a high measure of independence within the framework of the hospital nursing service.

The psychiatric unit of the Hertzler Clinic and Halstead Hospital, operating since 1926 and one of the oldest west of the Alleghenies, has evolved in

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the last five years into an autonomous, comprehensive care psychiatric clinic, operating within the larger structure of a closed-staff private general hospital. It deals with approximately 400 inpatients, 600 outpatients, and between 200 and 300 ward consultations a year. The administrative and professional structure of the unit is of some interest. The 196-bed hospital plays host to the Hertzler Clinic, a 25-man group occupying space within the hospital for their outpatient work and operating inpatient medical, surgical, obstetric, pediatric and psychiatric services. Nowhere is this symbiosis more evident than in the psychiatric department. The staff of the department is provided, as far as the outpatient service is concerned, by the clinic; but the psychiatric nurses, aides, and occupational therapists for the inpatient phase of the work are employees of the hospital. The psychiatrists are, of course, appointed to the hospital staff, but the clinical psychologists and psychiatric social workers, who do most of their work in connection with the inpatient service, are yet guests, administratively, within the hospital. Together, clinic and hospital psychiatric workers form a team. This team has something of the working relationship of a Quaker business meeting, where ideas are pooled and an attempt is made to reach a wide area of agreement, while respecting the views of any dissenting minority. This conglomerate structure of the team is in keeping with, and is given strength and vitality by, the emphasis on group process as the main treatment tool of the inpatient program.

The team includes two or three psychiatric social workers, two or three clinical psychologists, two psychiatrists, three occupational therapists or occupational therapy aides, a number of psychiatric nurses, a few nurse-aides, and also some student nurses on affiliation. This loose-jointed, large-group, team structure has proved so flexible that there is seldom any talk of dividing up into more conventional small teams. The larger group interacts in an integral way with each patient, and with each small group of patients; and to some extent with the patient group as a whole. The psychiatric floor consists nominally of 29 beds, but most of the time it overflows onto the medical floor, and all team members are kept working at some pressure.

Maxwell Jones, addressing the Kansas Psychiatric Society in Topeka in October, 1963, mentioned the desirability of having team-structured psychiatric units operating semi-independently within general hospitals, and saw this as a logical development for the future. He predicted, however, that when such units began to be set up they would run into problems of failure to achieve the full measure of autonomy required, and that this would be seen especially with the nursing service, which can seldom tolerate such a

detachment of one group of their nurses, as is essential if the nurses of the psychiatric ward are to be fully integrated with the psychiatric team. This has not proved such an obstacle, however, in a case where the change has slowly developed over many years.

The difficulty, long recognized in this clinic, of the need for acceptance of the rather foreign-body-like psychiatric unit in the general hospital, has been considerably lessened by the off-duty social contacts of the professional staff and by the long history of coexistence. Active propaganda for psychiatry is sometimes resorted to, unblushingly, at clinic and hospital staff meetings; and the medical and surgical staff recognize the value to them of psychiatric consultations.

Therapeutic Community and Group Interaction

Since the group therapy program first got under way in 1960 an increasing treatment pace has been achieved. Now the patient enters a busy area of psychological activity in which he is challenged continually, probed, confronted, tested, frustrated, or actively supported, according to his perceived needs, and communications are promoted between family members. The impact is considerable. From the first or second day almost every patient is in group therapy, for five hours a week, in one of the three inpatient groups, each presided over by a psychologist; and in addition many are soon placed in the psychodrama group, which meets for two hours at a time, three times a week; thus providing these patients with a total of 11 hours of group therapies weekly, in addition to conjoint family therapy sessions.

Of the daily ward rounds, two a week are made by the entire psychiatric team: the others consist in visits by the psychiatrists to their own patients, accompanied by a nurse and sometimes by a social worker, with student nurses (working with individual patients) also present. The team rounds provide an occasion for confronting, challenging or supporting the patient, coordinating the team's views, communicating at various levels, and examining patterns of interaction. Many of the team's own reactions are brought up for discussion at the team meeting which follows the rounds every morning.

The team meeting is used, among other purposes, for case staffings. These can often be brief, by virtue of the constant flow of communication within the team. This meeting is also used for discussions of ward happenings, of group therapies, of contacts with relatives, and of dismissal planning. There seems time now and then to touch on extramural community events, as they affect team and patients.

Occupational therapy is, of course, prescribed for

each patient. Recreational therapy includes various indoor and outdoor activities, including sports, but the emphasis, certainly, is not on entertainment and there is no "country house party" atmosphere. Instead, at times, the tone of the ward is one of rather stark seriousness, and some patients complain that "the group therapy goes on through all the waking hours of the day."

The different therapists have distinctive and personal approaches to group therapy. There is considerable variation as to non-directiveness or activity, but in all cases the group interaction, both within and outside the group of the moment, is the focus of therapy. In both group therapy and psychodrama, confrontations are frequent and often dramatic.

Individual psychotherapy is little used, being reserved for special situations, as, for example, a withdrawn catatonic patient with whom an initial one-to-one relationship is sought. Sometimes a patient, already in individual therapy, continues with this therapy, but it is more usual to suspend it while he is in the hospital, so encouraging free interaction with the groups to which he will belong.

Freud⁵ in *Group Psychology and the Analysis of the Ego* quotes McDougall's *The Group Mind*, seeming to agree with some of the conclusions; among these, that "the most remarkable and also the most important result of the formation of a group is the 'exaltation or intensification of emotion' produced in every member of it. The ego-boundaries pleasurably dissolve into those of the group, which is seen as having unlimited power. For the moment it replaces the whole of human society." Later in this work Freud declares that "The individual gives up his ego ideal and substitutes for it the group ideal as embodied in the leader," this identification then proceeding to a further stage, of identification with the group as a whole. The mutual tie between group members, then, is "based upon an important common quality; . . . the tie with the leader." The group therapists, however, imbued with a strong sense of the importance of the individual, strive to convey this feeling to the patients by emphasizing the non-authoritarian character of their own role, and the organic significance of the group. Questions addressed to the "group therapist" are parried and handed to the group, who will often then require the questioner to examine his own question. Thus regressive tendencies in the group are combated and instead the individual is able to use the group experience to increase his own self-reliance and ego-skills. There is nonetheless a certain tendency for some of the group members to attempt this regression, as shown by their insistence on calling the group therapy a "class" and by manifesting anger, either displaced and unrecog-

nized, or overtly aimed, when their therapist is away and another takes over.

The feature, just mentioned, of intensification of emotion in all members of a group, is clearly seen in psychodrama and also in conjoint family therapy. In the former, emotions can be sustained at a high intensity reminiscent of a hockey game or a Maori death-festival. Feelings experienced so vividly often continue to simmer until the afternoon, when in group therapy this replaying of family conflicts is further analyzed and worked over, and the emotional experience is given lasting significance as part of the patient's rehabilitation.

In the therapeutic community the patients play an active role. As Karl Menninger has said: "The patients themselves soon become an effective part of the very milieu by which they are healed." In the program which is the subject of this study, the patients' activity is probably maximal in the open-ended inpatient group therapies. As is so often the case, the group leaders are usually social workers or psychologists. It may be true that the psychiatrist, as he enters the new field of social psychiatry, can find some difficulty at first, due to the remains of a former authoritarian medical approach, adopted before his psychiatric training. Or, he may even have been influenced by the training itself, insofar as it has given him experience, and therefore confidence, in the one-to-one relationship in therapy. The psychiatric social worker or clinical psychologist for this reason often makes the better group therapist and may be able to make use of a special knowledge of social psychiatry.⁷ From the sidelines, he is able to focus attention on the need for acceptance of the individual, including the patient's own self, as rightfully unique; and also on the need for adaptive response to the valid demands of others. All relationships are brought under review, especially the intrafamilial ones.¹¹ The group member acquires skill eventually using his interaction with the others as a device for self-examination, by this means becoming aware of his own unconscious basic habits of thinking and feeling. This can result in substantial changes in the patient's reactions to persons involved in his life, especially spouse, children, and parents.⁸

A prominent feature of the work of the unit now is the stress on conjoint therapy with spouses, with patients and parents, or, increasingly, with patients and their whole family, even including the youngest children. Ackerman points out that "historically speaking, it was psychoanalysis that gave pointed emphasis to the role of family conflict in mental illness." Family therapy "intervenes on contemporary conflicts with the assumption that the past sources of pathogenesis are contained in the present conflicts."

The rationale of conjoint family therapy has been

discussed by many authors and there is considerable agreement on certain essential features. Particularly with the schizophrenic, the family relationships need the most careful study, as many patterns can be found and without these being seen, understood, and worked with, little chance exists of a change in the distorted family homeostasis; such as is necessary if the patient is to emerge from his psychotic adjustment.³ Gralnick⁶ found that in working with a patient "if his treatment were to be effective, the wounds of family members also required our attention, particularly since the patient would eventually be returning to them." Rabiner, Molinski and Gralnick¹⁰ report that all too often they had "seen hard-won gains in relation to the 'intramural family' dissipate themselves toward the end of hospitalization as they are tested against increasing exposure to the vicissitudes of life in the untreated family to which the patient must return."

It is well known that great improvement in the adjustment of a patient in therapy is followed often by strong resistances, and even the development of severe pathology, in other family members. Unless dealt with these can militate against the recovery of the primary patient. They are treated effectively through the group process, being functions of group interaction.

The social workers in our unit have been growing more enthusiastic with this modality of treatment and the results have been encouraging to patients and staff alike. Dismissal planning is now undertaken with more confidence. Practically every patient, before leaving the hospital, takes part in at least one session; and every patient is required to plan some kind of follow-up, either with the unit or at a center nearer home (especially in the case of out-of-state patients). In either case, the recommended follow-up is usually of the conjoint type.

The Small Decentralized Unit

The unit being described is not strictly a locally based one in the geographic sense, since its feeder-lines reach out into other states. In one sense, however, its ties are with limited communities, which radiate out in lines like a nervous system, the spidery lines of communication having ganglion-like nodes of loyal groupings of patients, ex-patients, and referring agencies. It is expected that as psychiatric resources multiply the small-sized treatment unit being described will concentrate increasingly on the growing needs of the surrounding counties, and the other "loyal groupings" will be cared for by newly developed agencies. Newly formed mental health centers in nearby counties are increasing, not draining away, the referrals. This is likely to continue as more county clinics are set up.

It can be seen from the fairly considerable turnover of inpatients that this unit, situated at the junction of the three large Kansas state hospital areas, reduces the admission load of these larger central agencies, and already to some extent furthers the objective of providing treatment within the general area of the patient's home community.

The Comprehensive Psychiatric Care Center

The functions of this unit include emergency and routine inpatient care, with follow-up therapy; group therapy, conjoint family therapy, and married couples groups, for both inpatients and outpatients, evaluations, in cases both of private referrals and of those from official agencies; long-term individual outpatient psychotherapy; day-patient care; and consultations for medical and surgical inpatients. The only function neglected would appear to be the inpatient care of younger children (i.e. under 16) and this is regarded as likely to stay this way, owing to the expense in terms of staff time and the difficulty of ever having enough staff.

Summary

An inpatient and outpatient comprehensive psychiatric care unit is described, functioning within a closed-staff rural general hospital, and operated by an autonomous team with a strong emphasis on group therapy, the therapeutic community, and a pace of therapy allowing of its use by those having only short-term insurance coverage.

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Multiple Impact Therapy

The Creative Process in Psychiatry in a Private Clinic: Assumptions and Rationale in Retrospect

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The Problem

GIVEN A 29-BED UNIT in a 196 bed, closed staff, private general hospital in a central Kansas community with a population of 1,600, what expectations could one entertain relative to the potential for the development of a dynamic psychiatric service? The answer to this question does not necessarily depend on the adequacy of the physical facilities nor necessarily on the community in which such a facility is located. The solution is largely dependent upon those persons, trained or otherwise, who commit themselves to search for the probable solutions in the development of the program.

The Solution

Beginning in 1960 and continuing through the present, the personnel of the Psychiatry Department of the Hertzler Clinic as a group** created a slowly evolving dynamic group-oriented program.^{4, 5} The intent of the group was to develop a program of quality, the best possible use of the resources of the personnel in the interest of the patient. In addition, the cost of the program to persons seeking help was to be within the reach of the middle income group.

A patient*** admitted to the program was given a full and complete psychiatric work-up, including an interview with a psychiatrist; psychological assessment by a clinical psychologist; an evaluation of social transactions and functioning by a psychiatric social worker; a complete medical history; as well as the routine, or even special, physical, laboratory and x-ray investigations received by any patient entering the general hospital. Once these data were assembled a staff conference was utilized to formulate working

hypotheses which permitted assignment to the various individual or group-oriented therapies.

The Guidelines

The underlying assumptions were neither clear nor explicit during the inception and early formative stages of the program. The personnel of the Psychiatry Department attempted to apprise their colleagues

The assumptions presented in this paper are construed by the writer as the framework of the rationale which makes this psychiatric program so effective. As such, these are but assumptions requiring verification through appropriately designed research.

This program highlights the democratic, give-and-take process in action, supposedly anti-authoritarian, humanistic and somewhat liberal in its orientation. A program of this type could hardly have been created if it were not for the adventuresome and creative, even rebellious, needs of each team member channeled constructively through a democratic process.

in other departments of the Clinic of the developments in papers presented at staff luncheons, informal talks over coffee, and informal reports regarding former medical or surgical patients about whom colleagues manifested interest, as well as through a general educational and dynamic orientation.

It was in retrospect that Morton and Long noted three assumptions which appeared to be basic to the program: (1) social or group transactions^{1, 3} are extremely important influences on personality development; (2) more persons can be helped by means of group and milieu therapy than can be helped in individual psychotherapy; (3) the effectiveness of the program would be determined, in large part, by the quality and extent of communication among the vari-

* From the Department of Psychiatry, The Hertzler Clinic, The Hertzler Research Foundation and the Halstead Hospital. The preliminary draft of this paper ("The Multiple Impact Treatment Program: Some Assumptions and Rationale") was presented to the staff of the Hertzler Clinic as the Psychiatric Department Program, June 24, 1964.

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*** Patient in the sense of a consulting client.

ous staff members of the psychiatry department and the coordination of their efforts.

The Rationale

What has not been done thus far is to analyze other assumptions, explicit or implicit, which provide the rationale for the program at Halstead. Other assumptions, both implicit and explicit, providing the rationale for the program are as follows:

1. Behavior labeled as "mental illness" or "mental disease" is usually not the result of invasion of the patient's body by bacteria, virus, pathogenic agent or other known physiological imbalances.

This assumption usually prevents the staff member from casting the patient in the role of a subservient and passive object toward whom they must react with the goal of "cure."

As the patient, he has the opportunity to discover that his situation is not hopeless but rather that he has reacted in a helpless manner.

2. Behavior labeled as "mental illness" or "mental disease" is learned initially as a means of reducing the level of tension, to escape psychological pain or discomfort, or to minimize unpleasantness; or it is behavior which reflects an insufficiency in the learning of constructive behaviors.

Such an assumption permits the staff member to feel (know) that he is not dealing with some "unknown" about which he can do little or nothing. Rather he is dealing with purposive behavior, and he has the task of helping the patient learn more constructive behaviors.

The patient experiences an awareness that if he has learned, even been taught, ineffective behavior he may, if he so chooses, learn more effective behavior. In other words, what has been learned can be "unlearned" and appropriate behaviors may be learned.

3. Patients are human beings whose behaviors merely reflect exaggerations of behaviors utilized by most human beings in their everyday living.

For the staff member, there is less tendency to act as if he were in a caste-class society, and he realizes the freedom to become as involved as a human being as he feels to be appropriate or so desires.

Patients learn that staff members are not god-like but only human beings who can help them to help themselves. There are no magical cures, no pills which will solve their problems. All that is required is the opportunity and the desire to learn.

4. The patient's original analysis of his so-called illness is usually erroneous. Guilt, depression, fear, anxiety, etc. are usually not the problem or problems, but rather are symbolic communications or secondary effects.

Staff members are oriented to the presenting complaints as merely signals, calls for help with the more

basic personality problems and emotional disturbances.

The patient soon begins to appreciate the view that a useless style of living⁶ or problems-of-living⁸ are the causal agents and not some mysterious process about which he can do nothing.

5. The various types of drugs (tranquilizers, energizers) are, like all somatic treatments, neither "cures" nor "problem solvers." Rather they serve the useful function of stabilizing the patient to the point that he has the opportunity to work on his problems, to develop awareness, and to learn more adequate behaviors.

Staff members perceive such drugs as representative of a selected giving on their part to the patient. This giving facilitates responsibility-taking by the patient. In addition, this transaction serves as a catalyst in the motivation of the patient toward the most active participation possible for him.

6. The patient's present behaviors are usually subjectively appropriate for the problems or tensions with which he is attempting to deal; however, such behaviors reach the point of diminishing returns when utilized blindly and indiscriminately.

For the staff member, this assumption permits acceptance of the patient without the need to demand changes but rather only the desire to promote those conditions in which the patient may change if and when he so desires.

For the patient, such an assumption tends to diminish unrealistic guilt as they learn that their behaviors have identifiable causes which can be talked about in an open and direct manner.

7. Each patient is required to accept that degree of responsibility of which he is capable at any particular moment in time and assist in the learning or relearning process.

Staff members are free to act in ways which will be unrewarding to "sick-role" or "playing sick" behaviors on the part of a patient and in turn to reward behaviors reflecting mastery of problems-of-living.

A patient achieves an awareness that there is much more that he can do to help himself than he believed might be possible. He experiences self respect in that he is treated as a "client" who has come to a consultant for recommendations which can either be accepted or rejected.

8. Every individual begins his life in relation to a group, usually his family, and continues as a member of various groups throughout his life. Problems-of-living are learned in groups or in transactions with significant members of a group.

This assumption allows the staff member to question the appropriateness of the "one-to-one model" for treatment and its application to most patients.

Individual therapy is construed as merely one important kind of learning situation which needs to be integrated with many others in order to be most effective. If problems-of-living are encountered in groups and reactions to them learned in groups, then such problems may be resolved in a group setting. Staff members allow patients greater freedom to confront one another with educated guesses, hunches, insights, etc. Such confrontations are usually effective, at times more effective, than if a staff member had interacted with the patient.

Patients learn that they can be effective in helping others to help themselves and that all human beings have problems in one form or another which we do not assume cannot be solved.

9. Problems-of-living are more readily solved in interpersonal-oriented groups where the catalytic effect of one member transacting with the other cannot be resisted usually.

For the staff member, this assumption is, in part, an implementation of the democratic process² which pervades our society. He sees his patients as having the potential for constructive action if the necessary facts are made clear.

Patients begin to use the opportunity to try, or to experiment with new roles or behaviors in groups (family therapy, group therapy, occupational therapy, psychodrama, activities conducted by nursing students, etc.) as well as in interpersonal transactions with other patients on the unit. They learn that consensual agreement is the most reliable and valid way to determine if their opinions, behaviors, even feelings are appropriate to the on-going situation.

10. Public and open communication without undue invasion of privacy is a must for all members of the ward community whether patient, psychiatric staff, medical consultant, maintenance, dietary, etc. By undue invasion of privacy is meant disrespectful activities that would harm an individual, such as malicious gossip and carrying personal information about another out from the hospital.

Staff members must assume a greater responsibility for relaying information, not only to their colleagues, but also to the patients with whom they are involved in the program.

Patients learn that in some ways they are a member of an unique community whose members do not betray confidences but rather share intimate experiences.

11. Psychological growth is not only to be expected but also to be experienced by patients and staff members alike.

Such an assumption on the part of a staff member permits him to be just the person he is, open to criticism or praise by the patients or other staff members with the awareness that appropriate criticism is

at best an index of the affectional ties which link the members of the ward community.

Patients are able to begin to accept the idea that psychological growth begins at birth and may, perhaps must, continue until death, and that such growth leads to greater awareness of self and others as well as a developing sense of personal adequacy and security.

12. The goals, or objectives, for any particular patient must be formulated through a democratic, give and take, process² in which each team member contributes to the best of his ability.

For the staff this means that most decisions become group decisions subject to modification when and if appropriate. This give and take process and public communication provide the consensual agreement which is essential to the group and milieu program.

The patients soon learn that there is not just one staff member who is interested in their welfare but that each staff member is involved to varying degrees.

13. The patient's relatives, members of the extramural community⁷ must be motivated to cooperate and to assist in whatever way needed, whether in giving a social history, participating in marital counseling, taking part in group therapy of the nuclear or extended family, entering individual therapy themselves, or making themselves available to the patient during the time the patient is on a weekend pass.

Such an assumption makes the staff member acutely aware that what a patient learns constructively can be destructively mismanaged by a relative in his transactions with a patient on visits home or during visiting hours.

Patients learn that most relatives, even friends and neighbors, will provide them with the opportunity to test their newly acquired answers to problems and at the same time be grateful for the help that they, the relatives, friends or neighbors, might get in the total therapy program.

14. Discharge from the dynamic program can be made when the patient experiences on weekend passes that he is able to deal with his environment in a more effective and rewarding manner than that of which he was capable upon admission to the hospital.

Staff members construe the weekend passes as essential to the program rather than ways of avoiding weekends at the hospital.

Patients eagerly, though not always, await the first and subsequent trips home to test their abilities.

15. No patient should be discharged from such an interpersonal-oriented, give-and-take, program without follow-up appropriate to his needs or desires.

Staff members are aware that participation in such a program followed by return to an isolated farm or small community in Kansas may be temporarily anxiety-provoking and provide the possibilities for the ex-

periencing of rejection on the part of the patient by the staff members.

Patients usually desire to follow-up in an after-care program which is appropriate to their needs and desires. In fact, some will commute 200 miles one way in order to attend weekly group or individual sessions with staff members.

Summary

The above assumptions are construed by the writer, whose ideas are not entirely unbiased, as the framework of the rationale which makes this program so effective. As such, these are but assumptions requiring verification through appropriately designed research.

This program highlights the democratic, give-and-take process in action, supposedly anti-authoritarian, humanistic and somewhat liberal in its orientation. A program of this type could hardly have been created if it were not for the adventuresome and creative,

even rebellious, needs of each team member channeled constructively through a democratic process.

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Your Dental Consultant

(Continued from page 21)

joint syndrome. Pain in the joint with movement, cracking, popping sounds, are common symptoms. Ear symptoms, such as humming or buzzing sounds, may be noticed. The rising number of motor vehicle accidents produce temporo-mandibular joint trauma. A typical deceleration accident causes the jaw to fly open and a mental stretch reflex then snaps the jaw shut. The T-M joint may be damaged with resultant synovitis, muscle lesions, ligamentous strains or joint subluxation. When head or neck injuries are treated by cervical traction the T-M joint is converted into a weight-bearing joint which can produce trauma. A plastic bite plate should be fastened to occlusal surfaces of the teeth to divert traction forces away from the joint and toward the teeth and maxillary buttress bone.³ Many patients with T-M joint symptoms are tense with psychosomatic problems. The abraded teeth characteristic of bruxism may be observed. As a general group, psychiatric patients present mouths in greatest need of repair. The decision necessary to seek dental care and adjustment required to complete treatment are not within their capabilities. Careful handling of these patients with established rapport will result in their renewed self-confidence as well as improved dental health. This dentist-patient relationship, with treatment accomplished on a person to person basis, provides a setting that should be used to combat the encroachment of socialistic trends.

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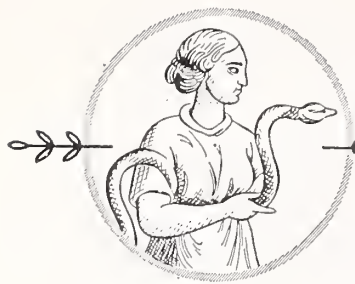
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STUDENT ESSAY CONTEST

The William Osler Medal of the American Association for the History of Medicine is awarded for the best unpublished essay on a medico-historical subject written by a student in one of the medical schools in the United States or Canada. All students who are candidates for the degree of Doctor of Medicine, or who graduated in 1965, are eligible. This medal, first awarded in 1942, commemorates the great physician, Sir William Osler, who stimulated an interest in the humanities among students and physicians alike.

Essays should demonstrate either original research or an unusual appreciation and understanding of a medico-historical problem. Maximum length is 10,000 words. The prize-winning essay will be submitted to the Editorial Committee of the Association, which may recommend it for publication in the *Bulletin of the History of Medicine*.

Essays must be submitted by March 23, 1966, to the Chairman of the Osler Medal Committee, William K. Beatty, Librarian and Professor of Medical Bibliography, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611.



Medical HISTORY

Leopold Auenbrugger and "The Inventum Novum"

ROBERT G. RATE, M.D., *Halstead**

IN STUDYING the discovery of such an ordinary procedure as percussion of the thorax, one is surprised to find that so useful and so rewarding a procedure was with difficulty impressed upon the medical profession.⁹ So simple is the application of resonance of air-bearing tissue to healthy or diseased lungs, that this could possibly have been the reason why percussion was actually disregarded as of value in physical diagnosis. It is better that we not say "physical diagnosis," because it was not until Corvisart, serving as the Imperial physician of Napoleon, popularized the actual physical examination of the chest, that physical diagnosis was attempted rather than the customary feeling of the pulse with associated speculation as to whether the patient was suffering from a thoracic illness. The amazing van Swieten⁴ could have given acumen to his students rather than despair in the diagnosis of chest lesions, had he only taken heed of the classical study done by his most worthy pupil, the results of which were published in honor of that capable Dutch physician, the master and founder of bedside teaching.

An opportunity to visit Austria, and Vienna in particular, recently stimulated my interest in Leopold Auenbrugger and the "Inventum Novum." A presentation of percussion must be preceded by a few remarks concerning several notable masters of medicine, and possibly the originator of modern methods of instruction. It was at the end of the 17th century that Boerhaave began his clinic in Leyden, Holland. The bedside instruction in clinical medicine by this distinguished master drew hosts of students to the comparatively unimportant Dutch university. Perhaps only two persons realized the value of clinical teaching, and it was fortunate that these two were of no

less influence than Pope Benedict XIII and Empress Maria Theresa of Austria. These two communicated with Boerhaave, and, as a result, the Roman and Austrian clinics were founded.¹ The Pope was the first to avail himself of the methods of Boerhaave,

Leopold Auenbrugger's life and contribution to the science of physical diagnosis are presented in a short review. The simplicity of percussion and resonance of air-bearing tissue could have been the reason why his work was not immediately accepted. His own realization of the importance of his work and its value to medicine fostered in him the desire to complete the task. Auenbrugger stands at the head of physical diagnosis.

the direct result being that the Roman Clinic, under the direction of the distinguished Leyden student, Lancisi, became the best-known clinic of Europe during the first half of the 18th century. Maria Theresa, constantly alert to progressive developments, was quick to invite Boerhaave to send one of his students to the Austrian capital. Boerhaave's selection sent Austrian van Swieten, who not only became the Austrian court physician but also established the most popular clinic in Europe in Vienna.¹ Austria rapidly became fruitful; 16 heirs blessed the Imperial family within the next 25 years under van Swieten's direction. At van Swieten's suggestion, De Haen was invited to join his Leyden colleague at the Austrian capital and together they founded the Vienna School of Medicine which has since held a ranking position

* From the Department of Surgery, the Hertzler Clinic.

in the medical world and produced many world-famous medical personalities.^{1, 2, 4} It was here that the idea of arriving at a diagnosis by actually examining the patient was developed. It was not long after the establishment of the Viennese medical college that one of the epochal contributions to physical diagnosis was made.² However, this initial advance in clinical diagnosis, did not come from one of the distinguished heads of the clinic. Curiously enough, and similarly to many worthy discoveries, the art of percussion as applied to medicine was discovered by a comparatively young man of no previous reputation. Many are of the opinion that when Auenbrugger presented his "Inventum Novum" he gave Vienna its greatest medical contribution.⁶ Leopold Auenbrugger stands at the head of modern physical diagnosis.

Biographical Sketch

The baptism records show that Leopold Auenbrugger was born November 19, 1722 in Gratz in the lower Austrian province of Styria, called Steiermark at that time.⁵ He was the son of Sebastian Auenbrugger and Maria Theresa nee Kaschutnik. His father was of the lower middle class and the proprietor of the "Gasthaus Zum Schwarzen Mohren," a suburban inn which may be visited today. He also operated a small hotel in the city of Gratz, and therefore was able to give his son a university and medical education. His family was at no time in very affluent circumstances, however, so his education was accomplished only after considerable sacrifice. This pressed deeply into his character, as evidenced by his later charitable nature. His father, a charitable and respected man, died in 1743 when Auenbrugger was 21 years old. He spent his boyhood in Gratz where he received his early education, principally in the humanities and philosophy. During these early student days, he worked for his father in the inn, and was required to keep record of the wine supply. This he did by percussing the level of the fluid in the wine barrels, acquiring some degree of acumen with his fingers and ears as well as familiarity with the procedure he was later to apply to medicine.

It was decided that Auenbrugger should study medicine. The van Swieten clinic was gaining favor at this time, so Vienna was the natural selection. He studied under the able instruction of then Baron van Swieten. There are no records as to his ability as a student or to his success in his examinations. As a student, his engagement of marriage to Marianna Von Priesterberg was announced. After several years, the formal marriage ceremony took place in 1754. His bride was 24 years old and Auenbrugger was 32. Her dowry was sufficient to enable him to occupy himself as a general practitioner in Vienna for several years. Two daughters were born to the couple, one of

whom died in infancy. The other daughter married Baron Louis Edelstein, and descendants of this couple are still living.⁷

When yet a young physician, Auenbrugger accepted the position of resident medical attendant at the Spanish military hospital of the Holy Trinity in Vienna. The hospital provided excellent clinical material, and its wards were frequently drawn upon by the University of Vienna for student demonstration. Van Swieten and De Haen were fully familiar with Auenbrugger's methods because of this interrelationship of services.³ The position on the staff of the Spanish hospital carried no salary, but it developed in Auenbrugger habits of careful investigation and physical examination, as errors in diagnosis would be discovered, inasmuch as his work was reviewed by the ablest clinicians of the time.

"New Discovery" Published

Just ten years after he began his work in Vienna, in 1761, Auenbrugger published his 95-page "Inventum Novum" or "New Discovery" upon which his fame rests. The work was in full title: "Inventum Novum ex Percussione Thoracis Humani, ut Signo, Abstrusos Interni Pectoris Morbos Detegendi," which translated reads, "A New Discovery That Enables the Physician, From the Percussion of the Human Thorax, to Detect the Diseases Hidden Within the Chest."³ This work is the first record of the use of immediate percussion of the chest, and in less than ten thousand words presented one of the most important methods of physical diagnosis. It is interesting to compare Auenbrugger's little book with van Swieten's writings of this same period. Van Swieten's commentaries on Boerhaave required eight volumes for complete publication. During the same period De Haen, equally famous contemporary of Auenbrugger, published 18 volumes on the general subject of medicine. Not many consult and few know that either of these works exists, whereas Auenbrugger's unpretentious monograph remains a classic. His new method was tested for seven years before publication, but like Laennec, whose activity was to come 50 years later, Auenbrugger realized the possibility and limitations of his discovery. Clinical observation and post-mortem experimentation and confirmation were used in recognizing that diseases of the chest may be distinguished from one another, and that significant variations may be differentiated by the sounds produced by tapping the chest with the fingers. His special method of percussion technic was the gentle striking of the chest with the points of the fingers brought together, first stretched out straight and then slightly flexed.³ To this tapping he gave the name "percussion," by which it has since been known.

Standards for Normal Sounds Established

He established a standard sound of healthy air-bearing lungs, training his ear to the normal percussion resonance. He noted that over the heart, over areas of consolidation, and in other non-air-bearing conditions the percussion resonance corresponded to the sound produced by tapping over the thigh. This percussion note was taken as the standard of dullness and given the term "Schenkel-ton" or thigh sound. He carefully studied all gradations of the degree of dullness observed in clinical experience. The heart, being somewhat covered by air-bearing tissue, was found by Auenbrugger to produce a percussion note not quite the standard dullness of solid, muscular thighs. He then further showed that by means of the sound obtained along the precordial margins he could demonstrate the size of the heart under different conditions. This was the first step in modern differential diagnosis between dilatation, hypertrophy and other cardiac diseases. He showed that he could outline the extent to which consolidation had occurred and the presence or absence of fluid as well as the height of the fluid level in pleural effusion. As confirmatory evidence, he injected fluids into the pleural spaces of cadavers and demonstrated the fluid level by percussion. He spent many hours investigating the physical findings in pneumonia and tuberculosis, correlating clinical and postmortem results.

Vienna, at the time, was an ideal place for the study of pulmonary disease. The city was surrounded by walls, and the inhabitants were crowded into small and unsanitary quarters. In some sections streets are still narrow and wandering, and in those days were lined by high buildings, giving dwellings a "well-like" atmosphere, being damp and dark with a scarcity of sunlight. Situated in the valley of the Danube, which frequently flooded in the springtime, Vienna had the highest death rate from tuberculosis in Europe. Auenbrugger succeeded in demonstrating the presence of cavities in the lungs and their general size and character. He further stated when a lesion was located by percussion and the hand laid over the area the tactile fremitus of coughing could be felt. It is believed that Auenbrugger applied auscultation in his technics; however, Laennec justly has the credit for the detailed study and application of this discovery.

Lag in Recognition of the Work

His own realization of the importance of his work and its value to medicine fostered in him the desire to complete the task. It is difficult to understand how his observations failed to attract proper attention; he met with very little encouragement from members of the hospitals working close to him. His close associ-

ates, De Haen and van Swieten, ignored Auenbrugger's work completely. This lack of appreciation is more surprising as Auenbrugger was a pupil of van Swieten and very devoted to his old master, having dedicated the "Inventum Novum" to him. De Haen actually snubbed and opposed the discovery. Even though he used percussion methods on the abdomen, he sneered at elevating his investigations to slightly higher anatomical levels. Auenbrugger foresaw the disparagement, envy, misconception, and stupidity of the Austrian specialists of the day and predicted: "I have very well foreseen that I shall meet with great opposition as soon as I have published my invention for envy, malevolence, hatred, jealous disparagement, and even slander have never been wanting to men who have glorified or perfected the sciences and arts by their discoveries."⁹

Those Who Furthered the Work

Fortunately De Haen's successor in Vienna, Maximilian Stoll, treated Auenbrugger's work with much more generous consideration. Stoll introduced percussion into practical teaching and on the strength of percussion findings of fluid in the pleural cavity, he attempted thoracenteses on a number of occasions. One of Stoll's pupils, Eyerel, took up the procedure and wrote a small book on Auenbrugger's percussion methods and advanced thoracentesis to the profession.² One of Eyerel's books fell into the hands of the distinguished French physician, Corvisart, who took the appreciative remarks of Eyerel concerning Auenbrugger's methods seriously. At this time the subject of percussion of the chest was unknown, except by the few physicians of the Vienna school conducted by Stoll. Corvisart tried the method himself, realized its value, and called the attention of his colleagues and students to percussion as a useful aid in physical diagnosis. He secured one of Auenbrugger's original monographs and in 1808 translated the monograph into French. Corvisart not only maintained Auenbrugger's right to possession but elevated the method by the prestige of his own name and position. It was, therefore, but one year prior to Auenbrugger's death that the unreserved acknowledgement on the part of such an eminent French physician was given to his work—an example of one time when German-French friendship elevated and gave life to a fruitful idea which may otherwise have remained dormant and in oblivion for some time.

It is of significance to know that Corvisart was Laennec's patron in medicine and his favorite teacher. Laennec was thoroughly stimulated by Auenbrugger's work and no doubt got the idea of replacing the hand over the diseased area for detection of fremitus, as Auenbrugger suggested, by the ear. The way to the discovery of auscultation, both immediate and

mediate, was paved for one quick to sense the possibility as was Laennec. It was not without foundation that Skoda later remarked that Auenbrugger's unpretentious discovery was the beginning of modern diagnosis, and Auenbrugger the founder of the new science of physical diagnosis.³

Final Years

Auenbrugger was characterized as a tireless worker, always kindly disposed and charitable so that many a poor student owed his opportunity and success to him. He was an artist in music and a composer in his own right, composing the opera, "Die Rauchfangkehrer" (chimney-sweeper). His character is exemplified in the choice he made in 1768. Upon resigning his duties at the Spanish hospital, he was offered his choice between annual pension of 400 marks or the elevation to the nobility. He chose the pension! Later, through the persuasion of his wife and daughter, the choice was reversed, and a patent of nobility was given him from the Emperor Franz Joseph II.

A monument for Auenbrugger was founded, and by his own opinion much more valuable than one of metal. Franz Clar, professor of pathology and pharmacology in Gratz, founded the Auenbrugger Stiftung for needy students of medicine. During his later years, Auenbrugger was in demand to render his services to his colleagues and medical students. He was a familiar figure at the Court of Vienna and was eminently successful. His practice included both the poor and the wealthy and his unfailing willingness to assist the poor was tradition.

Toward the end of his life Auenbrugger lived during the summertime in the suburb of Rossau and spent most of his time cultivating a simple garden. He lived to celebrate his golden wedding anniversary in 1804, and was especially contented to live in

devoted companionship with his wife. After her death one year later, his vitality abandoned him. His last illness was the result of pneumonia; with his advanced age of 87 he was left with little resistance. He was mentally clear until the very end and predicted his demise. Shortly before noon of the day of his death, he surveyed his condition and, looking at the clock, stated that when 2 p.m. arrived he would have passed on.

Although Vienna did not pay tribute to him during life, his work and name have become classic. As expressed in his own words his desire eventually was fulfilled. "May what I have written conduce to the comfort of the unfortunate sick and to the advantage of the true cultivators of the medical art. Such is my desire!"²

It is a saddening observation that many of us have forgotten or given up the "Inventum Novum" by virtue of replacement by advancing science or by sheer laziness. Should we not renew our skill and knowledge of this useful diagnostic tool?

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REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.

The President's Message

DEAR DOCTOR:

1966 will undoubtedly be recorded in history as one of the most decisive for health care of the American people. 1965 brought a Medicare law which organized medicine did not, and still does not approve. Those in the federal government charged with administering Medicare must realize that they are walking a very fine line. Participation vs. non-participation is still an issue. Ill-advised rules and regulations by H.E.W. could well tip the scales. A regulation requiring written certification by the patient's physician for hospital admission would bring physicians by the thousands to the side of non-participation. Those proportionately few elderly citizens who really need help will, as usual, be the losers.

Sincerely,

George Burkett, Jr., M.D.

President





Utilization Review Committees

GEORGE E. BURKET, JR., M.D., *President*

On July 1, 1966, hospitals will have utilization review committees if they are to qualify under Part A of PL 89-97. The House of Delegates of the AMA declared such committees shall consist of practicing physicians. Since it may be presumed the hospitals of Kansas intend to participate in the Medicare program, professional staffs, where such committees are not presently functioning, may wish to plan toward their organization.

Resistance among physicians to offer their services in this effort stems from four principal points. The doctor does not agree that payment of hospital costs gives the federal government authority to coerce the attending physician's professional judgment concerning admissions, length of stay or services rendered. The doctor, better than anyone else, understands and respects the honest difference of opinion among physicians as to what is the best care for a patient and, therefore, hesitates to sit in judgment upon his colleagues until competency or integrity appear to become involved. He is reluctant to expose himself to what might become an additional legal hazard and finally, he has little taste for assuming still another time consuming task for which he will receive small thanks and no remuneration.

The legal threat may not be as real a danger as some presently fear. A number of arguments may be made to this point. First is the perhaps ethereal distinction that the committee rules on payment eligibility rather than on treatment policy. A somewhat firmer protection may come from professional liability insurance companies who are adding such coverage to their policies. And finally, through a somewhat devious course, it can be argued that a greater liability exists where such service is not conscientiously performed. The Supreme Court of Illinois recently ruled that if the hospital by-laws require consultation and

if injury to a patient results from a physician's failure to obtain consultation the hospital is liable. The implication is that the hospital, although not practicing medicine, is responsible for the quality of professional service rendered in the hospital. When utilization review committees are required in the by-laws it appears liability could occur if they fail to function properly.

The doctor's distaste for exercising judgment upon his peers may not be palliated by this new duty, but the precedent is well established. Doctors already sit on ethics committees, on grievance committees and on tissue committees, each designed (as is the utilization review committee) to give the patient assurance he will receive full value for his health care dollar and for his safety.

And finally, whether the federal government may or may not make such requirements, and for that matter, the relationship of the utilization review committee to Medicare itself is not actually pertinent to the question. The cost of hospitalization makes unnecessary expense of greater importance than ever before. Overcrowding of hospital facilities by persons whose commitment is not essential might create a risk to the patient in acute need. Therefore, every patient in a hospital, regardless of his personal preference, should be admitted only when his condition requires hospitalization. While there, he should receive such care as his condition requires and his release can be expected to occur at the earliest date possible according to his recovery. No one except a physician may make these decisions and, of course, a utilization committee composed of practicing physicians will recognize this fact. Therefore, it appears the average physician will experience little coercion with reference to Medicare from the committee in his hospital.

A utilization review committee can perform a useful service quite apart from the gestapo role. Critical analyses of statistics has enabled some hospitals to effect a material saving for their patients. A study, for example, of the use of laboratory services might reveal facts which are not currently known to physicians. An examination of the average hospital stay following a cholecystectomy might be compared with the experience in other hospitals. A wide variety of explorations could be undertaken and results discussed by the staff.

It is through ventures of this type that physicians can contribute toward providing all their patients improved efficiency and greater economy in hospital

care. It is not through disallowing payment in the occasional long-term care case where most savings will be achieved. It is through staff acceptance of policies that will minimize the ordering of unproductive procedures; it is efficient planning for operating room schedules; it is through admission policies that might save a half day of hospital stay for many patients where the greatest potential economies will occur.

It is for such activity that the utilization review committee should be formed. If this satisfies the requirements of Medicare, as it certainly will, that is incidental and of little concern either to the committee or the professional staff it serves.

KANSAS STATE DEPARTMENT OF HEALTH						
TOPEKA, KANSAS						
Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence						
Summary of Cases Reported in September, 1965 and 1964						
<i>Diseases</i>	<i>September</i>		<i>5-Year Median 1961-1965</i>	<i>January to September Inclusive</i>		<i>5-Year Median 1961-1965</i>
	<i>1965</i>	<i>1964</i>		<i>1965</i>	<i>1964</i>	
Amebiasis	—	9	1	3	21	34
Aseptic meningitis	—	4	4	3	11	8
Brucellosis	—	—	—	3	2	6
Diphtheria	—	—	—	1	3	—
Encephalitis, infectious	15	34	9	30	61	20
Gonorrhea	209	264	264	1897	2396	2111
Hepatitis, infectious	35	36	35	370	513	379
Meningococcal meningitis	—	—	—	13	8	12
Pertussis	8	—	3	20	15	20
Poliomyelitis	—	—	—	—	1	—
Rheumatic fever	—	—	—	2	3	3
Salmonellosis	54	28	28	236	219	198
Scarlet fever	8	14	8	67	79	284
Shigellosis	12	32	13	102	216	102
Streptococcal infections	169	93	102	2344	1231	1075
Syphilis	66	73	72	656	698	803
Tinea capitis	6	3	11	50	65	65
Tuberculosis	27	20	27	195	199	210
Tularemia	—	—	1	2	4	8
Typhoid fever	—	—	—	—	3	2

KaMPAC*

**Kansas Medical Political Action Committee*

DEAR DOCTOR:

Recently I was asked why the Kansas Medical Society and the American Medical Association have not endorsed and worked for candidates opposed to the Medicare theory of the practice of medicine. The answer is that they cannot legally do so. The Corrupt Practices Act dealing with elections, and enacted many years ago, states a corporation cannot indulge in political campaigns either financially or with active work for the candidate. For this reason, COPE was formed by the AFL-CIO, and later, AMPAC and KaMPAC by medicine. The latter two are voluntary, unincorporated organizations whose purposes are political education, endorsement of candidates with financial and physical help.

There are the answers devised by the American Medical Association and the Kansas Medical Society to the election problem.

If you wish to influence the composition of the next congress, you should be a member of KaMPAC and AMPAC.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Book REVIEWS

SCINTILLATION SCANNING IN CLINICAL MEDICINE, edited by James L. Quinn, III, M.D. A collection of papers originally presented on January 30 and 31, 1964, at the Symposium on Scintillation Scanning in Clinical Medicine, Bowman Gray School of Medicine, Winston-Salem, North Carolina. W. B. Saunders Company, Philadelphia, 1964. 278 pages illustrated. \$11.50.

This excellent book consists of 19 papers by 26 contributors from 11 states and Washington, D. C. Its 278 pages represent the combined experience of a dozen years of scanning by recognized leaders in the field. It starts with a discussion of physical principles involved which affect the compromise between sensitivity and accuracy of scanning systems. Methods for synthesis of radioisotope-labeled compounds, including antibodies, are being developed for increasing the target to non-target ratio. Nearly all organs except the adrenals, pituitary and gonads have been scanned. The 196 scans pictured may assist in the interpretation of questionable scans.

Phantoms may be used for checking the dependability and limitations of scanning techniques. There is a trend toward use of shorter half-life, soft gamma-emitting radionuclides with little or no beta radiation so that larger doses may be used for scanning without delivering excessive radiation to the patient. Development of camera type scintillation instruments makes dynamic studies possible and shortens the time required for diagnostic scans. This is particularly important for patients who have difficulty in remaining motionless.

The separate papers are concise and clear, with adequate references, tables and illustrations where appropriate. There is even an educated guess as to future developments in diagnostic scanning.

This book is recommended as a valuable addition to the radioisotope library for the experienced as well as the beginner in scanning.—*L.O.G.*

HEART ATTACK: NEW HOPE, NEW KNOWLEDGE, NEW LIFE, by Myron Prinzmetal, M.D. An Essandess Paperback, 1965. 232 pages. \$1.75.

This book has been written in laymen's language, for the patient who has had a coronary thrombosis, by a well known senior cardiologist in collaboration with an articulate patient. The present paperback book is an updated version of the 1958 edition. They present many facets of post-coronary care that we, as physicians, neglect to tell our patients, either by not spending sufficient time with them or assuming that our patients already have insight into their bodily function. Particularly stressed is the importance of weight reduction, low fat and cholesterol intake, discontinuance of smoking, and a graded constant exercise program. These four things alone make the book worthwhile. The Appendices contains sample menus, ranging from 600 calories to 1,800 calories; caloric and fat content of commonly eaten foods, recipes for preparing certain low fat-cholesterol meals; and cooking hints. This would be a worthwhile book for all your coronary patients to read. Besides reinforcing the regime you have already started; it would educate your patient to more intelligently discuss his disease with you.

There are some minor statements with which the reviewer, and probably you, will not agree; such as the dietary use of Safflower Oil, an illogical comparison of the scars on Glenn Cunningham's legs

(Continued on page 42)



Along The BOOKSHELF

Recent Acquisitions

American College of Surgeons. Committee on Trauma. The management of fractures and soft tissue injuries. 2d ed. Saunders, 1965.

Asratian, E. A. Compensatory adaptations, reflex activity, and the brain. Pergamon, 1965.

Barney, V. S., Hirst, C. C., and Jenson, C. R. Conditioning exercises; exercises to improve body form and function, Mosby, 1965.

Behbehani, A. M. Human viral and rickettsial diseases. A handbook of laboratory diagnosis for practicing physicians. 2d ed. Dept. of Pediatrics, University of Kansas Medical Center, 1965.

Bhaskar, S. N. Synopsis of oral pathology. 2d ed. Mosby, 1965.

Clinical Conference on Cancer. 8th, Anderson Hospital and Tumor Institute. Tumors of bone and soft tissue. Year Book, 1965.

DeStevens, George, ed. Analgetics. Academic Press, 1965.

Fields, Harry, Greene, J. W., Jr., and Smith, Kaighn. Induction of labor. Macmillan, 1965.

Gamble, J. R. and Wilbur, D. L., eds. Current concepts of clinical gastroenterology. Little, Brown, 1965.

Green, T. H. Gynecology, essentials of clinical practice. Little, Brown, 1965.

Harding, M. E. The parental image; its injury and reconstruction; a study in analytical psychology. Putnam, 1965.

Hollender, A. R. Office practice of otolaryngology. Davis, 1965.

International Symposium on Pyelonephritis. 2d, Boston, 1964. Progress in pyelonephritis, Davis, 1965.

Irving, G. W. and Hoover, S. R., eds. Food quality; effects of production practices and processing. A symposium. American Association for The Advancement of Science, 1965.

Kiell, Norman. Psychiatry and psychology in the

visual arts and aesthetics, a bibliography. University of Wisconsin, 1965.

Klieneberger-Nobel, Emma. Focus on bacteria. Academic Press, 1965.

Lamb, L. E. Electrocardiography and vectorcardiography: instrumentation, fundamentals, and clinical applications. Saunders, 1965.

Lechevalier, H. A. and Solotorovsky, Morris. Three centuries of microbiology. McGraw-Hill, 1965.

McCleary, R. A. and Moore, R. Y. Subcortical mechanisms of behavior; the psychological functions of primitive parts of the brain. Basic Books, 1965.

Marshall, John. The management of cerebrovascular disease. Little, Brown, 1965.

Pincus, Gregory. The control of fertility. Academic, 1965.

Rowbotham, G. F. Acute injuries of the head, their diagnosis, treatment, complications, and sequels. 4th ed. Williams and Wilkins, 1964.

Salzman, E. W. and Britten, Anthony. Hemorrhage and thrombosis; a practical clinical guide. Little, Brown, 1965.

Sarason, I. G., ed. Psychoanalysis and the study of behavior; an enduring problem in psychology. Van Nostrand, 1965.

Sarason, I. G., ed. Science and theory in psychoanalysis; an enduring problem in psychology. Van Nostrand, 1965.

Sawyer, P. N., ed. Biophysical mechanisms in vascular homeostasis and intravascular thrombosis. Appleton-Century-Crofts, 1965.

Sechenov, I. M. Reflexes of the brain. M. I. T. Press, 1965.

Shaw, Gavin, Smith, George, and Thomson, T. J., eds. Resuscitation and cardiac pacing; the proceedings of a conference. Davis, 1965.

Speers, R. W. and Lansing, Cornelius. Group therapy

(Continued on page 42)



Personalities—IN KANSAS MEDICINE

Clayton H. Diener, who practiced for several years in Haven and Burrton before moving to Aibonito, Puerto Rico, is now associated with **Wilmer A. Harms** at Hesston. For the past year he has been in surgical training at Wesley Medical Center in Wichita.

Carl K. Zacharias, Dodge City, was among those inducted as fellows of the American College of Surgeons at the annual clinical congress held in Atlantic City in October.

Edward Greenwood, Topeka, has been appointed chairman of the advisory committee for research of the Lifetime Sports Foundation, Washington, D. C.

Antonio Huaman, Topeka, participated in the fifth Latin-American Congress of Pathology, held in Lima, Peru, during the second week of November. He conducted a workshop in Cryostat Frozen Sections and presented a paper on Thrombohemolytic Purpura. The second contribution was co-authored by **John Cavanaugh**, also of Topeka.

C. Arden Miller, dean of the University of Kansas School of Medicine, was elected vice president of the Association of American Medical Colleges at a recent meeting of the association held in Philadelphia. Following the AAMC meeting, Dr. Miller attended the President's conference on health in Washington, D. C.

The first Kansas physician to participate in Project Viet-Nam, **Wayne G. Parker**, Oberlin, left the first of December for a two-months' tour of duty. His

"tentative assignment" is Komtum, situated approximately 300 miles north of Saigon near the Cambodian border.

H. V. Bair, superintendent and medical director at Parsons State Hospital and Training Center, was re-elected to the executive committee of the south-central region, American Association on Mental Deficiency, at the organization's annual meeting held in New Orleans in October.

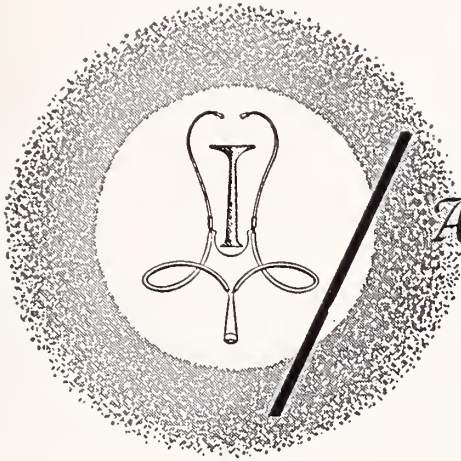
John Crary, Topeka, was the principal speaker on the causes and effects of arthritis at the annual Fall Health Day program held in Topeka in November. Topeka physicians participating in a panel discussion on arthritis were **Bartlett Ramsey**, **Donald Hobbs**, **Vernon Wiksten**, and **Francis Collins**. **John L. Lattimore** directed a question and answer session following the discussion.

Barbara Lukert, Kansas City, presented a paper on the effect of fluoride on calcium metabolism at a meeting of the Central Society for Clinical Research in Chicago in November.

H. O. Marsh, Wichita and **John B. Jarrott**, Hutchinson, conducted a free diagnostic clinic for crippled children, held in Liberal in November.

Lyle B. Anderson recently moved from Holyrood to Great Bend, where he will continue his medical practice. Dr. Anderson had practiced in Holyrood for four years.

(Continued on page 42)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

CHRONIC DISEASES SEMINARS

Following is the program for the remaining seminars on Management of Patients with Chronic Diseases, sponsored by Kansas City's Menorah Medical Center and Danciger Institute for the Health Sciences. The seminars are held at Hammack Auditorium in Menorah Medical Center, 4949 Rockhill Road, Kansas City, Missouri.

Feb. 2-3 (Wednesday evening, all day Thursday)
Arthritis and Skeletal Injuries

Mar. 2-3 (Wednesday, Thursday as above)
Metabolic Diseases

Registration is free, but participants will be expected to pay for meals. For further information contact William R. DeLay, The American Academy of General Practice, Volker Boulevard at Brookside, Kansas City, Missouri 64112.

JANUARY

Jan. 22-27 American Academy of Orthopaedic Surgeons, Palmer House, Chicago (members and invited guests only). John K. Hart, Exec. Secretary, 29 East Madison, Chicago 60602.

Jan. 23 Sub-committee on Kansas Female Genital Tract Cancer Death Study of the Committee on Control Cancer, Kansas Medical Society. Open to all physicians. University Room, University of Kansas Medical Center.

Jan. 31-Feb. 2 American College of Surgeons (sectional meeting), Shamrock-Hilton Hotel, Houston. S. P. Harbison, M.D., Secretary, 55 East Erie, Chicago 60611.

FEBRUARY

Feb. 2-6 American College of Cardiology, Conrad

Feb. 8-12

Feb. 21-23

Hilton Hotel, Chicago. William D. Nelligan, Exec. Director, 9650 Rockville Pike, Washington, D. C. 20014.

American College of Radiology (members only), Drake Hotel, Chicago. W. C. Stronach, Exec. Director, 20 N. Wacker Drive, Chicago 60606.

American Academy of Allergy, Americana Hotel, New York. James O. Kelley, Exec. Secretary, 756 North Milwaukee, Milwaukee 53202.

MARCH

Mar. 1-3

Mar. 18-19

Mar. 27-30

31st Midwinter Clinical Session, Colorado Medical Society, Brown Palace Hotel, Denver. Write Colorado Medical Society, 1809 East 18th Ave., Denver 80218.

Conference on Rural Health, Broadmoor Hotel, Colorado Springs. Bond L. Bible, Ph.D., Secretary, 535 North Dearborn, Chicago 60610.

Missouri State Medical Association, Muehlebach Hotel, Kansas City, Missouri. T. R. O'Brien, Exec. Secretary, 634 North Grand, St. Louis 63103.

POSTGRADUATE COURSES

University of Kansas:

Jan. 20-21 *Medicine and the Law*

Jan. 24-25 *Gynecology and Obstetrics*

Feb. 7-11 Postgraduate Clinical Symposia: *Medical Problems in Surgical Patients; Pulmonary Diseases; Office Psychiatry; Clinical Pharmacology and Therapeutics; Dermatology*

Feb. 14-16 *Radiology and Radioactive Isotopes*

Feb. 21-24 *Surgery*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, 39th & Rainbow Blvd., Kansas City, Kansas 66103.

University of Colorado:

Jan. 16-22 *Annual General Practice Review*

Mar. 16-18 *Ultrasonic Diagnosis*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Missouri:

Jan. 20 *Clinical Pathology Seminar*

Feb. 9-19 *Cardiology*

Mar. 2-3 *Impaired Lower Extremity Function*

For further information write the Office of Continuing Medical Education, University of Missouri, School of Medicine, Columbia, Missouri.

Feb. 19-20 *Antibodies: Origin, Structure and Activity.* American Academy of Allergy, Americana Hotel, New York. (This two-day course precedes the annual meeting of the Academy, scheduled for February 21-22.)

Bookshelf

(Continued from page 39)

- in childhood psychosis. University of North Carolina, 1965.
- Sykes, George. Disinfection and sterilization. 2d ed. Lippincott, 1965.
- Symposium on Cellular Biology of Myxovirus Infections, London, 1964. Ciba Foundation Symposium: Cellular Biology of Myxovirus Infections: (proceedings) Little, Brown, 1964.
- Talland, G. A. Deranged memory: a psychonomic study of the amnesic syndrome. Academic, 1965.
- Taylor, J. H., ed. Selected papers on molecular genetics. Academic, 1965.
- Traisman, H. S. and Newcomb, A. L. Management of juvenile diabetes mellitus. Mosby, 1965.
- U. S. Army Medical Service. Neurological surgery of trauma. U. S. Govt. Print. Off., 1965.
- Willmer, E. N., ed. Cells and tissues in culture: methods, biology, and physiology. Academic, 1965. V. 1.
- Workshop in Teratology. 1st, University of Florida, 1964. Teratology: Principles and techniques. Edited by James G. Wilson and Josef Warkany. University of Chicago, 1965.
- Zatzkin, H. R. The roentgen diagnosis of trauma. Year Book, 1965.

Book Reviews

(Continued from page 38)

with scars resulting from myocardial infarction, a statement that the entire right ventricle of the heart can be destroyed and the circulatory system will compensate for this, etc. In spite of these minor differences this book would benefit most patients who have had a coronary thrombosis.—L.C.

PREVENTIVE MEDICINE: PRINCIPLES OF PREVENTION IN THE OCCURRENCE AND PROGRESSION OF DISEASE, edited by **Herman E. Hilleboe, M.D. and Granville W. Larimore, M.D.** 2nd Edition. W. B. Saunders Company, Philadelphia, 1965. 523 pages illustrated. \$12.00.

This second edition of *Preventive Medicine* brings us up to date on the many problems of disease prevention, not only on those diseases that are communicable, but also those that occur because of lack of awareness of available preventive measures.

I am impressed with the newer concepts brought out in this book. First, Dr. Hilleboe is designated as "Professor of Public Health Practice," and, second, his book on preventive medicine is entitled *Principles of Prevention in the Occurrence and Progression of Disease*.

More of our physicians dedicating their lives to the field of preventive medicine need to be recognized as "practitioners of preventive medicine" than as public health officers.

Dr. Hilleboe has given us a book so badly needed and so well presented that all state and local health departments should have at least one copy available for all members of the staff, and each division of the department should encourage all personnel to carefully digest their particular chapters.—J.M.M.

Personalities

(Continued from page 40)

James Basham, Fort Scott, and **Richard Nabours**, Topeka, were recently elected to active membership in the American Academy of General Practice.

Lucien R. McGill, Hoisington, completed a course in sociological epidemiology at the University of Oklahoma, at Norman, in November. Dr. McGill, a retired general practitioner, serves as Barton County Health officer.

The Month in Washington

From the Washington Office American Medical Association

The Public Health Service has expanded its "pap" test program with a goal of providing cervical cancer tests for most women who enter hospitals and many of those who see physicians for any reason.

A total of \$6 million has been allotted for the expanded nationwide campaign. Grants will be made to hospitals, medical schools, state and local health departments and non-government health groups for training of technicians, post-residency training of physicians, purchase of laboratory equipment, examination of hospital outpatients and other such expenditures.

Since last March, the American Academy of General Practice has been implementing for the PHS an office cancer detection program. A PHS spokesman termed the program "most effective," although not costly.

The PHS said it expects to achieve its goal in hospital tests within the next five years, with the number of hospitals providing this service to all adult women patients increasing each year during this period. Hospitals providing care for the poor and medically indigent will receive first consideration in the awarding of grants. These patients have not been tested usually for cervical cancer, the PHS said. PHS Surgeon General William H. Stewart said the new hospital-based screening program reaching high-risk, low-socio-economic groups offered "a truly effective" means of fighting cancer through the "pap" test for early detection.

Although the "pap" test was developed more than 20 years ago, only 20 per cent of the nation's 62 million adult women had received the test last year, the PHS said.

The report of the President's Commission on Heart Disease, Cancer, and Stroke proposed a national cervical-cancer detection program as the next logical step to expand the limited program previously carried out by the PHS' Cancer Control Program. The clinical training programs for cancer control will have \$6 million in funds for the next 12 months, double the amount previously available. The grant-aided programs will be carried out by medical schools, hospitals, and such health groups as the American Can-

cer Society, the American Academy of General Practice, and state and local health departments.

A special advisory committee of non-government medical experts is conducting a comprehensive review of side-effects of birth control pills.

The Advisory Committee on Obstetrics and Gynecology was appointed in November by the Food and Drug Administration because of reports that women who had taken oral contraceptive pills had suffered thromboembolic phenomena including strokes, thrombophlebitis and pulmonary embolism, and various eye and vision manifestations. An article in the AMA's *Archives of Ophthalmology* reported 69 cases of eye ailments, migraine and strokes among women who had taken the pills.

As an interim measure, the FDA directed manufacturers of the pills to put on package labels two warnings—(1) use should be stopped if eye problems occur, and (2) women who have had strokes should not take them.

It is estimated that more than four million American women have been taking birth control pills which are manufactured by seven U. S. drug firms.

At its first meeting the seven members of the special committee—all medical school gynecologists and obstetricians—concluded that there was no immediate need for immediate action on the reports of adverse experience with oral contraceptive pills. The committee believed that "final recommendations . . . can safely await the conclusion of its deliberations." Two more committee meetings were scheduled, in January and March. Dr. Joseph F. Sadusk, Jr., FDA Medical Director, said the committee probably would issue its final report following the March meeting.

The FDA put on computer tape and turned over to the committee for evaluation all of the clinical reports it had received on suspected adverse reactions from oral contraceptive drugs. The FDA pointed out that it had "emphasized previously that these are naturally occurring conditions in some women which have been noted as far back as medical experience extends."

The Kansas Medical Society—1965-1966

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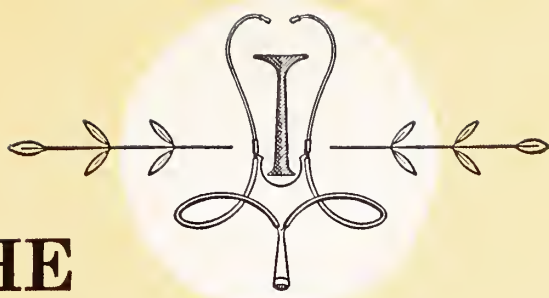
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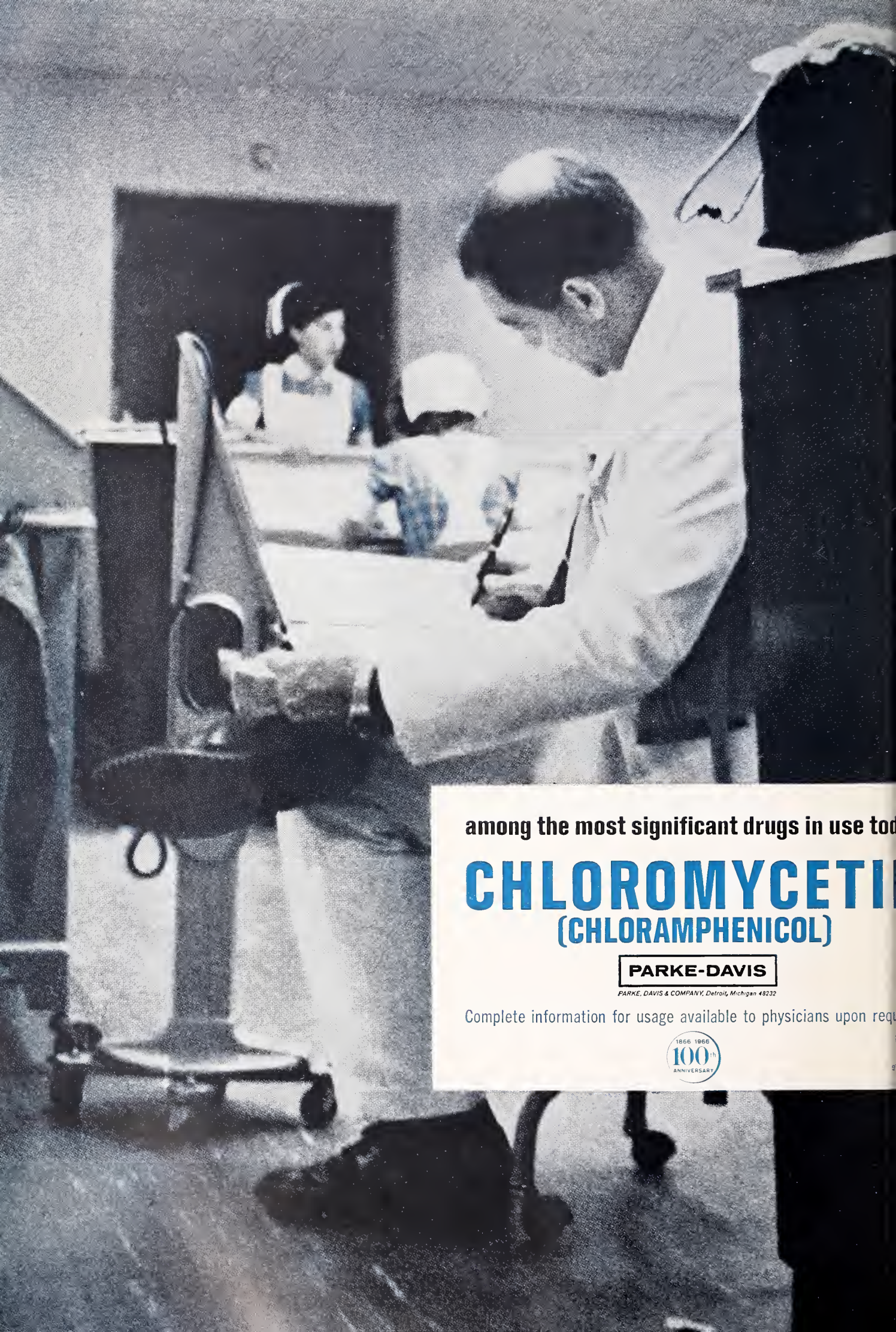
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Special Issue

The Hertzler Clinic

Part II



The Thyroid Board—

—Its Functions as a Consultative Group in Thyroid Problems

**J. W. WELCH, M.D., R. P. STOFFER, M.D.,
E. N. McCUSKER, M.D., and A. D. BURNETT, M.D., *Halstead****

IT IS THE PURPOSE of this presentation to report the experience and functioning of a Thyroid Board over a two year period. This consultative body was conceived in order to bring to the patient a varied but concentrated knowledge of thyroid disease. Since its inception this group has consisted of an internist-endocrinologist, a surgeon, a radiologist and a pathologist,** in addition to the physician whose patient harbored a thyroid problem. The board functions within a 26-man specialty clinic in an institution which enjoys a modest reputation as a thyroid center; the latter may serve to explain why this particular clinic sees a higher proportion of thyroid problems than the average clinic of comparable size.

Materials and Methods

For the past several years the outpatient population of the Hertzler Clinic has varied between 35,000 and 40,000 annually. These patients are largely from a five-state area which includes Kansas, Oklahoma, Texas, Colorado, and New Mexico. In the two year period from 1962 to 1964, eight per cent or 296

patients, were found to have palpable thyroid nodules, while an additional seven per cent or 259 patients, had other thyroid dysfunction. This figure of 555 patients with thyroid disease was obtained by exam-

A Thyroid Board consisting of an internist, a surgeon, a radiologist and a pathologist have acted as a consultative body on all thyroid problems in a Mid-western, 26-man specialty clinic. A total of 238 consultations were accomplished over a two year period. The types of diagnostic problems and the results of treatment are outlined.

* From the Departments of Surgery, Internal Medicine, and Radiology, The Hertzler Clinic, The Hertzler Research Foundation and the Halstead Hospital.

** Dr. C. A. Hellwig, 1962-1963; Dr. Hans Lettner, 1963-1964.

ining the records of 500 out of each 4,000 registrants in the years 1962 to 1964. The Thyroid Board has been consulted on only 238 cases, or approximately 20 per cent of the total, pointing up the fact that the board is not consulted on all thyroid disease but only the diagnostic and therapeutic thyroid problems.

The average age of the 238 patients seen in consultation was 51; they were predominantly female: there were 31 males and 207 females. The incidence

of seven major categories of thyroid disease is tabulated in *Table 1*.

Multiple thyroid function studies were available to the consultants on each patient. All the patients had most, if not all, of the following tests: PBI, ET-3, RAI uptake, scintiscan, BMR, cholesterol and agglutination for thyroid antibodies. If the data necessary for accurate diagnosis were not on the chart at the time of consultation, the Thyroid Board suggested such additional tests as it desired and reconvened when the needed information was recorded.

TABLE 1
INCIDENCE OF VARIOUS TYPES
OF THYROID DISEASE

<i>Type of Disease</i>	<i>Number of Patients</i>	<i>Per Cent of Cases</i>
Adenoma	68	29.0
Multinodular	51	21.4
Toxic	42	17.7
Carcinoma	29	12.2
Diffuse colloid	18	7.6
Lymphadenoid	27	11.3
Acute thyroiditis	3	0.8
Total number of patients ..	238	100

At this clinic any physician who so desires may call for the consultatory service on an hour's notice. He presents his patient to the group as a whole, and each consultant individually queries and examines the patient to his satisfaction. The group as a whole then suggests further diagnostic procedures or advises a therapeutic regimen. The physician and, of course, the patient are not obligated to follow such advice but in our experience it is infrequently ignored.

Discussion

Several categories in *Table 1* were of interest to us in the light of our previous experience. The relative frequency of nodular goiter, both solitary and multiple, is consistent with past experience.^{6, 8} Both lymphadenoid goiter and cancer were lower than our findings in the larger series. An unusual revelation of this study was the relatively high frequency of toxic thyroid disease. Absolute figures in such a small series are not too meaningful and relative figures must be viewed with some caution, but by both absolute and relative standards a 14 per cent incidence of toxic thyroid disease was, to us, surprising. The incidence of cancer was lower than we had ascertained in recent studies^{1, 9} in which the incidence varied from 13.8 to 16.7 per cent.

Twenty-six of these patients are listed in *Table 2* as not treated. There were several reasons for this. Most of the patients in this untreated group were referred to the Hertzler Clinic for diagnostic evaluation only and they were returned to their local physicians with our diagnostic impression and therapeutic suggestions. A number of them refused therapy, especially when surgery was the treatment of choice. Others have arranged to return at a later date for surgery and have not as yet presented for the suggested therapy. At first glance, ten per cent seems an inordinately large segment but not when it is placed in proper perspective, i.e., the greater percentage was sent to this clinic on a consultive basis.

Ninety-one of these patients were advised surgery and accepted. The surgical procedures varied from simple lobectomy to total thyroidectomy with radical neck dissection. An interesting dividend from those subjected to surgery was the opportunity to assess the diagnostic acumen of the Thyroid Board. Eighty of the 91 surgical patients were correctly diagnosed by the Thyroid Board and 11 were misdiagnosed, either positively or negatively, a diagnostic acuity index of 88 per cent. This is somewhat lower than the accepted 90 per cent standard for competent thyroidologists. However, when the 31 cases of toxic thyroid disease are added we arrive at a diagnostic acuity index of 91 per cent, which is acceptable for knowledgeable thyroidologists.

TABLE 2
METHODS OF TREATMENT

<i>Methods of Treatment</i>	<i>Number of Patients</i>	<i>Per Cent of Cases</i>
Surgery	91	38.2
¹³¹ I	31	13.1
Propylthiouracil	10	4.2
Thyroid extract	80	33.4
No treatment	26	10.1
Total number of patients treated	238	100

Eighty patients have been, and are being treated with thyroid extract as primary therapy. For the diffuse goiter with thyroid decompensation and for the lymphadenoid type of goiter, most agree that this is the accepted form of therapy. The greater percentage of the remainder are nodular goiters, diagnosed either by a scan or by clinical judgment. Some of these patients have been advised surgery, especially those with cold nodules as determined by scintigram, and have refused treatment; treatment with thyroid extract was the secondary therapeutic choice. This

leaves a relatively small percentage of nodular goiters on suppressive thyroid therapy as a means of treatment. A basic disagreement often arises between those oriented towards medicine and those oriented towards surgery on the treatment of a thyroid nodule. It is the opinion of the surgically oriented segment of the Thyroid Board that thyroid nodules once formed, never disappear with suppressive thyroid extract. It is their opinion that the diffuse tissue upon which the nodule lies may shrink, thus causing the nodule to elude palpation. It is the opinion of those oriented towards medicine that these thyroid lumps or nodules can be made to regress with thyroid extract and when they so regress, they need not be surgically excised. It was the hope of this board that after several years of experience this issue could be settled one way or the other by following a number of these cases. This may transpire within the next few years but as of now there is not enough evidence to formulate narrow guidelines on this question.

It has been shown by Starr⁵ that there need not be a 20 year age limit in the use of radioactive iodine in the treatment of toxic thyroid disease, while the potential hazards of I¹³¹ therapy in juveniles are suggested by others.^{3, 4} Included in our series are two juveniles, ages 12 and 14, and three patients below the age of 30 who were treated with radioactive iodine for toxic goiter. All have had excellent results as evaluated by both clinical and laboratory methods. In this issue⁷ we tabulated our surgical treatment of toxic thyroid disease at its nadir—no cases in the year 1963. The explanation for this lies in the substitution of I¹³¹ for surgery, and in the face of such excellent results with radioactive iodine it does not seem therapeutically sound to utilize other modalities except when specifically indicated. In this series several patients refused both I¹³¹ and surgery, and were, therefore, placed on long term anti-thyroid therapy. These patients have had an initially good result, but will be followed closely for possible recurrence.

Results of Treatment

It is too early to evaluate the efficacy of surgical therapy. Cancer of the lower grade of malignancy—such as papillary carcinoma, follicular carcinoma, Hürthle cell carcinoma, and invasive adenoma—are known to grow slowly and the patient may seem clinically well, free of disease and appear in robust health for years while still harboring a recurrence or a metastasis. Recurrence of nodular thyroid disease is likewise a matter of two to ten years even when the patient is on suppressive thyroid therapy. It is only in the category of toxic thyroid disease, wherein hypothyroidism and recurrent hyperthyroidism appear in a matter of months, that we are able to examine

our therapy realistically. In this study 100 per cent of the patients obtained a good result and only 18 per cent manifested a moderate degree of hypothyroidism easily controlled with replacement doses of thyroid extract.

Four of the cancer patients are dead; three of these had a polymorphous cell carcinoma of the thyroid and the other an anaplastic adenocarcinoma. We have yet to see a patient with polymorphous cell carcinoma of the thyroid survive six months. One patient with papillary carcinoma of the thyroid has been re-operated for local recurrence. One patient has had a total thyroidectomy, radical neck dissection and I¹³¹ therapy for follicular carcinoma of the thyroid. Our treatment for metastatic thyroid carcinoma is much the same as that outlined by Beierwaltes² except the dosage is necessarily smaller. To the best of our knowledge, the remainder of the 23 patients are well and clinically free from disease as shown by all clinical and laboratory methods available to us.

Surgical complications were minimal, as shown by Table 3. All patients were examined by an otorhinolaryngologist and all have had repeated serum calciums along with thyroid function studies. The morbidity could be lessened, perhaps, but it is the opinion of all of our surgeons that any patient subjected to major surgery is entitled to at least seven days for recuperation. Not only is the patient entitled to it, but he rebounds faster postoperatively than the patient who is hustled in and out of the hospital.

TABLE 3 COMPLICATIONS OF TREATMENT		
Complications	Number of Patients	Per Cent of Cases
Death	0	0
Permanent parathyroid tetany	0	0
Unilateral vocal cord paresis .	2	0.8
Wound infection	1	0.4

The therapeutic regimen for the patient with a functioning nodular goiter, traced by scintiscan and tested by all the standard thyroid function tests, called for suppressive therapy with thyroid extract to a daily dose of three grains. If a nodule or nodules manifested significant regression, or even arrest, on re-examination in four to six months, therapy was continued. If, however, a subsequent re-evaluation in another three to six months revealed either no further regression or progressive enlargement, treatment was interrupted, a second scintigram with TSH stimulation obtained, and a different therapeutic regimen

or modality, usually surgical intervention, suggested. Perhaps the largest single disadvantage to such a treatment plan has been the failure of the patient to return for follow-up examination. It is conceivable that this may lead to abandonment of medical treatment in favor of surgery on all patients with solitary nodules, functioning or nonfunctioning, and on many patients with firm multinodular glands.

Of the 91 patients who had thyroidectomies, 21, or 23 per cent were failures of medical management; two of these proved to be papillary carcinomas of the thyroid. These patients had been on thyroid extract for varying periods of six months to one and a half years without satisfactory regression of the nodularity. As of this writing 25 per cent of the 80 patients currently on thyroid therapy appear to be failures. Another 25 per cent have been temporarily lost to follow-up. Ten per cent are in the 70 and over age group and it has been the policy of the Thyroid Board not to advocate surgery in this group unless the nodule was an enlarging, solitary, cold nodule as shown by scintiscan following TSH stimulation, or unless tracheal compression was a problem. The remaining 40 per cent, or 32 patients, have enjoyed complete or partial regression and remain on thyroid extract as primary treatment. They will be followed on an outpatient basis with an occasional scan and occasional thyroid function tests. We hope to report on their progress at a future date.

Summary and Conclusions

A Thyroid Board consisting of an internist, a sur-

geon, a radiologist and a pathologist have acted as a consultative body on all thyroid problems in a Midwestern, 26-man specialty clinic. A total of 238 consultations were accomplished over a two year period. The types of diagnostic problems and the results of treatment are outlined. It is our conclusion that this consultatory service is of definite benefit to the patient, bringing to him a varied, but combined, 50 years of thyroid experience in the solution of his thyroid problem.

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REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.

Thyroid Disease—

An Analysis of the Changing Trends

JACK W. WELCH, M.D., *Halstead**

WHENEVER THYROIDOLOGISTS convene to discuss thyroid disease, the enigma of the changing trends invariably arises. The questions evoked relate to: a reduction in both total thyroid admissions and surgical procedures on the thyroid gland; an apparently significant increase in the incidence of thyroiditis and cancer of the thyroid gland; an apparent decreased frequency of toxic thyroid disease and nontoxic hyperplasia; and any and all reasonable postulates to explain this changing incidence of the various types of thyroid disease. This study was thus prompted in an attempt to deduce reasonably accurate statistical and theoretical answers to the preceding questions.

Materials and Methods

In the 25-year period from 1938 to 1963, 3,910 surgical goiters were analyzed histologically at the Hertzler Clinic and Halstead Hospital. This is an annual average of 156, ranging from a high of 310 in 1945 to a low of 46 in 1963. The notable decline in total annual thyroidectomies necessitated the use of percentages rather than absolute numbers for clarity and validity.

The goiter cases for this presentation were divided into six categories: nontoxic multinodular, diffuse colloid, diffuse toxic, adenomatous, lymphadenoid, and malignant. All specimens were submitted for competent pathological analysis. The pathological criteria employed to determine malignancy were the standard ones used universally: (1) gross or microscopic blood vessel invasion; (2) penetration through the capsule; (3) invasion of adjacent tissue by thyroid tissue; and (4) the presence of papillary growth with cellular atypia.

Adenomatous Goiter

This category was the largest in our series and consisted of 1,008 cases. From 1938 to 1958, the number of adenomatous goiters rose greatly; from 1958 to 1963, a small decrease was noted. This is shown graphically in *Figure 1* and *Tables 1* and *2*. These lesions were solitary and consisted largely of five basic types: follicular, if follicles constituted the predominant histologic formation; papillary, if the cellular formation tended toward papillae; fetal, if

the microscopic structure consisted of miniature follicles with little or no colloid in the small acini; mixed, if more than one cellular growth existed without a clear preponderance of one type; and malignant. The incidence of malignancy in this group was higher than in the multinodular category. Fourteen of these patients were children under the age of 15, and 12 of them had malignant changes in the adenomata.⁶ Of the remaining cases, 92 per cent were adult women from 18 to 75 with an average age of 46.9 years.

Nontoxic Nodular

The second largest category in absolute numbers was the multinodular group of 778. During the 25

An analysis of approximately 4,000 thyroidectomies extending over a 25-year period at the Hertzler Clinic discloses a changing pattern in thyroid disease. This study reveals an increased evidence of certain thyroid disease entities and a decline in others as well as a reduction in total admissions for thyroid disease. A partial explanation for these changing trends is presented.

years encompassed by this study, both the absolute and relative number of nontoxic nodular goiters gradually decreased (*Figure 2*). This is at variance from the findings of Mudge and co-workers after whose presentation this study was patterned. They found this type of goiter "on the increase and in absolute numbers it surpassed all other types combined." The average age of patients in this group was 49.8 years; only 6.2 per cent were encountered in males. The incidence of malignancy in this group was six per cent; in the combined adenomatous and multinodular it was 17.4 per cent. This is slightly higher than previously reported by us in an earlier publication.⁷

Diffuse Colloid

An even more notable declivity occurred in the patients with diffuse colloid goiter. A synonymous term in our lexicon for this histologic type is diffuse colloid hyperplasia. These goiters were operated on for a variety of reasons, most determinant among

* From the Department of Surgery, the Hertzler Clinic, Hertzler Research Foundation, and the Halstead Hospital.

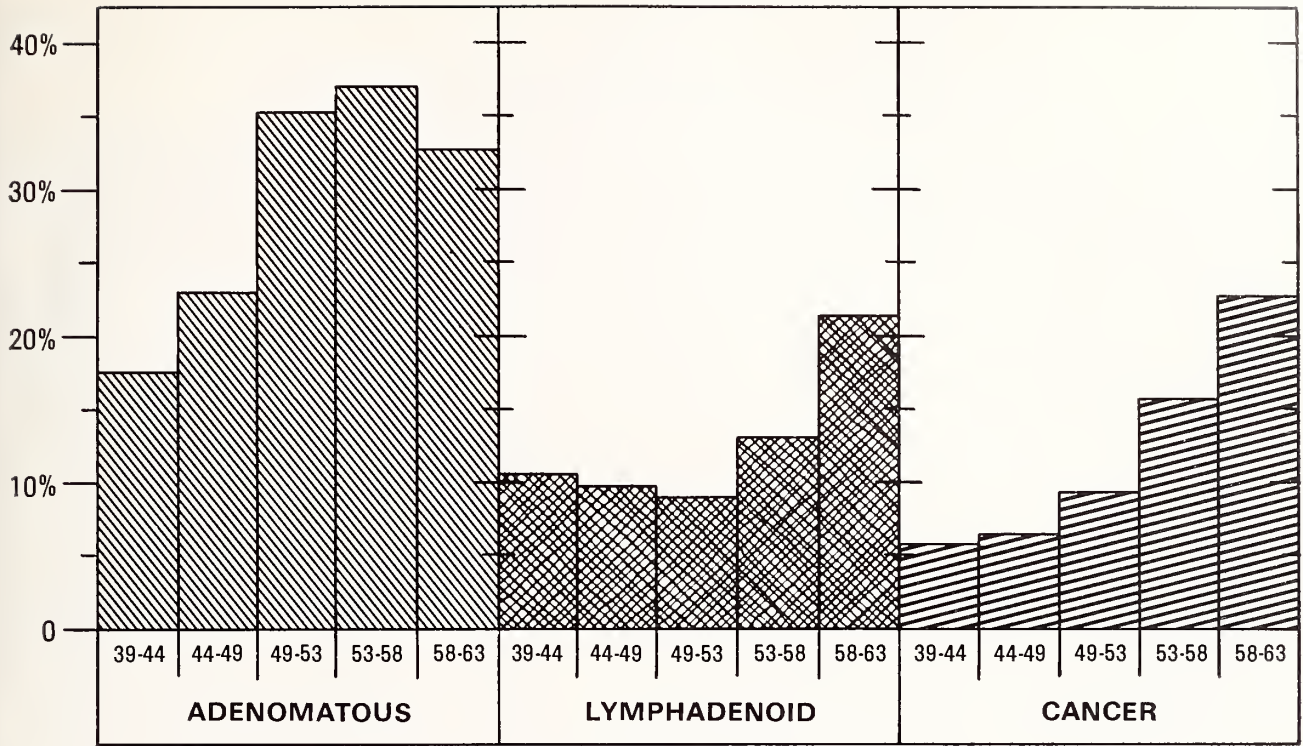


Fig. 1. Incidence of Adenomatous, Lymphadenoid and Malignant Goiter, 1939-1963

which were: trachea compression, suspect irregularity, and cosmetic deformity among others. At surgery the glands were diffusely enlarged, firm and often lobulated. Microscopically, they presented a diffuse hyperplasia with increased fibrosis and occasionally, lymphocytic infiltration. By and large, this thyroid dysplasia was a disease of younger women, the average age being 40.1 years.

Diffuse Toxic

The most precipitous drop in incidence was noted in the toxic goiters, from 52 cases in 1939 to no cases in 1963. And from 571 in the first 12 years, the cases treated surgically dwindled to 96 in the last 13 years. This was the youngest group of patients with an average age of 35.6 years; 83 per cent were women. In the last decade 186 patients have been

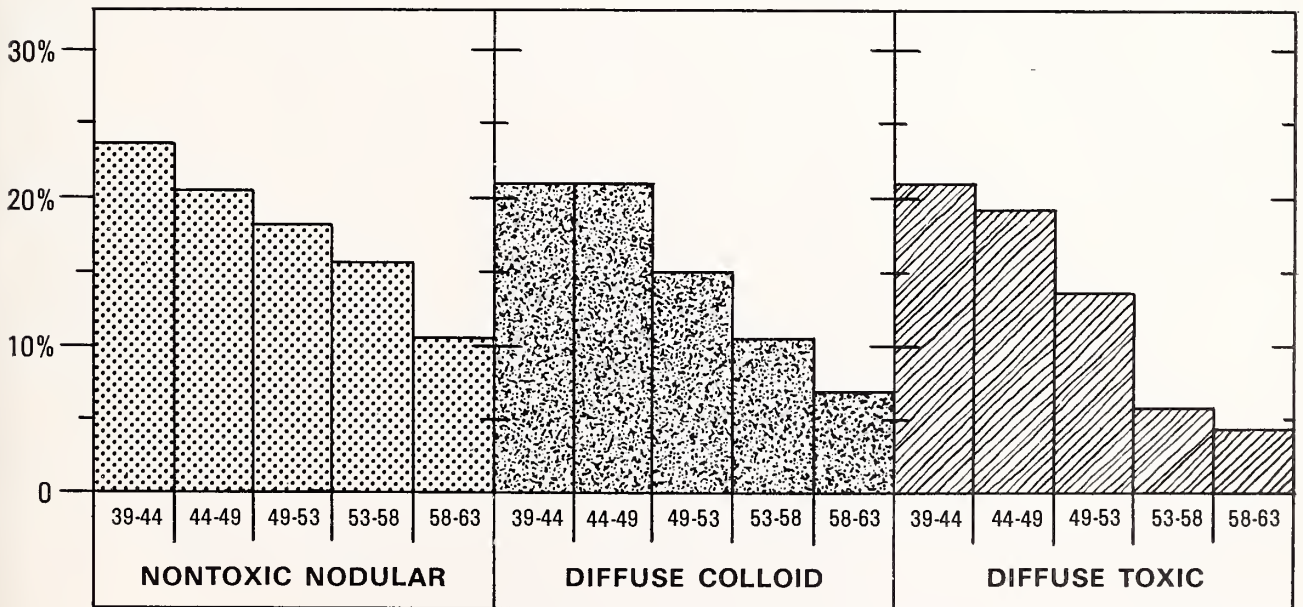


Fig. 2. Incidence of Nontoxic, Nodular, Diffuse Colloid and Diffuse Toxic Goiter, 1939-1963

TABLE 1
ANNUAL INCIDENCE OF THYROID DISEASE
1939 to 1943

<i>Year and Per Cent</i>	<i>1939</i>	<i>%</i>	<i>1940</i>	<i>%</i>	<i>1941</i>	<i>%</i>	<i>1942</i>	<i>%</i>	<i>1943</i>	<i>%</i>	<i>Totals</i>
Nontoxic nodular	55	24.3	43	21.1	71	25.1	73	23.7	71	24.8	313
Diffuse colloid	47	20.8	45	22.0	58	20.0	68	22.1	55	19.2	273
Diffuse toxic	52	23.1	39	19.1	61	21.6	81	26.3	55	19.2	288
Adenomatous	41	18.1	39	19.1	45	15.9	41	13.3	64	22.4	230
Lymphadenoid	21	9.3	26	12.7	27	9.5	31	10.1	29	10.2	134
Malignant	10	4.4	12	6.0	21	7.4	14	4.5	12	4.2	69
Totals	226	100.0	204	100.0	283	100.0	308	100.0	286	100.0	1307
<i>1944 to 1948</i>											
<i>Year and Per Cent</i>	<i>1944</i>	<i>%</i>	<i>1945</i>	<i>%</i>	<i>1946</i>	<i>%</i>	<i>1947</i>	<i>%</i>	<i>1948</i>	<i>%</i>	<i>Totals</i>
Nontoxic nodular	67	24.3	61	19.7	47	19.5	37	19.2	34	18.3	246
Diffuse colloid	52	18.2	60	19.4	56	23.2	41	21.3	39	21.1	248
Diffuse toxic	53	19.2	71	23.0	61	25.3	27	13.9	27	14.7	239
Adenomatous	53	19.2	70	22.9	45	18.7	56	29.0	53	28.6	277
Lymphadenoid	37	13.4	32	10.4	14	5.8	16	8.2	18	9.7	117
Malignant	14	5.1	16	4.6	18	7.5	16	8.4	14	7.6	78
Totals	276	100.0	310	100.0	241	100.0	193	100.0	185	100.0	1205
<i>1949 to 1953</i>											
<i>Year and Per Cent</i>	<i>1949</i>	<i>%</i>	<i>1950</i>	<i>%</i>	<i>1951</i>	<i>%</i>	<i>1952</i>	<i>%</i>	<i>1953</i>	<i>%</i>	<i>Totals</i>
Nontoxic nodular	32	18.1	30	18.5	17	14.9	24	19.3	26	20.3	129
Diffuse colloid	36	20.4	30	18.5	12	10.5	10	8.1	11	8.6	99
Diffuse toxic	23	12.9	21	13.0	17	14.9	21	16.9	14	10.9	96
Adenomatous	50	28.3	52	32.1	47	41.2	48	38.9	53	41.4	250
Lymphadenoid	14	7.9	17	10.5	10	8.8	11	8.9	12	9.4	64
Malignant	22	12.4	12	7.4	11	9.7	10	8.1	12	9.4	67
Totals	177	100.0	162	100.0	114	100.0	124	100.0	128	100.0	705
<i>1954 to 1958</i>											
<i>Year and Per Cent</i>	<i>1954</i>	<i>%</i>	<i>1955</i>	<i>%</i>	<i>1956</i>	<i>%</i>	<i>1957</i>	<i>%</i>	<i>1958</i>	<i>%</i>	<i>Totals</i>
Nontoxic nodular	22	21.7	21	22.3	8	9.9	4	4.5	7	11.5	62
Diffuse colloid	11	11.0	11	11.7	9	10.9	8	9.1	6	9.8	45
Diffuse toxic	12	11.8	3	3.2	6	7.3	2	2.3	2	3.3	25
Adenomatous	30	29.7	33	35.1	32	39.0	44	50.0	24	39.3	163
Lymphadenoid	11	11.0	12	12.8	12	14.6	14	16.0	10	16.4	59
Malignant	15	14.8	14	14.9	15	18.3	16	18.1	12	19.7	72
Totals	101	100.0	94	100.0	82	100.0	88	100.0	61	100.0	426
<i>1959 to 1963</i>											
<i>Year and Per Cent</i>	<i>1959</i>	<i>%</i>	<i>1960</i>	<i>%</i>	<i>1961</i>	<i>%</i>	<i>1962</i>	<i>%</i>	<i>1963</i>	<i>%</i>	<i>Totals</i>
Nontoxic nodular	5	8.2	7	12.5	6	11.3	5	9.8	5	10.9	28
Diffuse colloid	4	6.6	4	7.1	5	9.4	3	5.9	2	4.3	18
Diffuse toxic	4	6.6	3	5.4	4	7.6	2	3.9	0	0.0	13
Adenomatous	28	45.9	18	32.2	16	30.2	14	27.4	12	26.1	88
Lymphadenoid	1	18.0	11	19.6	12	22.6	13	25.5	12	26.1	59
Malignant	9	14.7	13	23.2	13	18.9	14	27.5	15	32.6	64
Totals	61	100.0	56	100.0	56	100.0	51	100.0	46	100.0	270

TABLE 2
INCIDENCE OF THYROID DISEASE FOR FIVE-YEAR PERIODS
From 1939 to 1963

<i>Time Interval</i>	<i>1939-1943</i>		<i>1944-1948</i>		<i>1949-1953</i>		<i>1954-1958</i>		<i>1959-1963</i>	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Nontoxic nodular	313	23.9	246	20.4	129	18.3	62	14.5	28	10.5
Diffuse colloid	273	20.9	248	20.6	99	14.4	45	10.6	18	6.7
Diffuse toxic	288	21.3	239	19.8	96	13.6	25	5.9	13	4.9
Adenomatous	230	17.6	277	23.0	250	35.4	63	38.2	88	33.0
Lymphadenoid	134	10.3	117	9.7	64	9.1	59	13.9	59	22.1
Malignant	69	6.0	78	6.5	67	9.2	72	16.9	61	22.8
Totals	1307	100.0	1205	100.0	705	100.0	426	100.0	267	100.0

treated with radioactive iodine. The number treated with the antithyroid drugs as the primary form of therapy is unobtainable.

Lymphadenoid

In a 25-year period 433 cases of thyroiditis, or 11 per cent of all surgical goiters, were placed in this broad and encyclopedic classification. Lymphadenoid goiter in our terminology includes Riedel's struma, de Quervain's thyroiditis, chronic thyroiditis, and Hashimoto's struma. Ten of these cases presented the picture of subacute thyroiditis or de Quervain's thyroiditis replete with degeneration and regeneration of follicles, acute and chronic inflammation and large foreign body giant cells. Four cases of Riedel's struma were encountered. At surgery these glands were inordinately firm, adherent to the surrounding structures and pale grey in color. On sectioning, the glands revealed severe degeneration and destruction of glandular tissue and very dense sclerotic tissue. In some fields pseudo-giant cells were present and in many areas irregular cellular hyperplasia could be seen. A gradual increase in the lymphadenoid type of goiter was recorded as shown in the graph (*Figure 1*), from a low of 9.1 per cent in the 1949 to 1953 era to a high of 22.1 per cent in the 1958 to 1963 era. Even within the last five-year period the incidence of thyroiditis has increased. Only six of these cases were men and the average age of the group was 45.6 years. In our experience, in 11.9 per cent of Hashimoto's disease the thyroid gland is associated with malignant neoplasia.²

Malignant Goiter

A most disconcerting, if less meteoric rise, in the incidence of malignant thyroid disease was encountered in this study. Three hundred forty-seven thyroid cancers occurred in the 3,910 thyroidectomies for an incidence of 8.8 per cent in the 25-year span. The percentage of malignant goiter in the last five

years, however, has averaged 22.8 per cent and most of these in the solitary adenomas. Ninety-three and five-tenths per cent of these were women and the average age was 43.6 years. Eighty per cent represented a more differentiated histologic architecture and hence a more favorable prognosis, while 20 per cent were anaplastic with a more guarded prognosis.

Analytic Comment

Early in this study it became apparent that for meaningful analysis, percentages would be mandatory rather than absolute figures. This was necessitated by the decrease in the number of cases seen and operated on over the later years of this 25-year period. There were several factors operative in this relatively sharp reduction, in our opinion. The nearly 4,000 patients included residents of every state in the Union except Alabama, Louisiana, and two of the New England tier of states. In the last ten years, the perimeter has contracted to the six-state area of Kansas, Oklahoma, Missouri, Texas, Colorado, and New Mexico. It is believed that the migration of well trained, competent surgeons to the smaller cities throughout the United States, and particularly in Kansas, and the establishment of medical centers in every state, including Kansas, has played a major role in the decreasing thyroid admissions at our institution.

Operative also in this decrease, and probably more significant, is the currently popular concept of medical treatment of thyroid nodules. In the belief, fallacious or not, that thyroid nodules will disappear under the influence of thyroid extract, referring physicians are watching and treating such nodules with long term suppressive thyroid feeding. It has been our experience that a nodule once formed never disappears; it may, however, elude palpation. Thyroid extract, by blocking TSH and thereby reducing hypertrophy, causes the diffuse glandular tissue beneath the nodule to regress. The nodule remains the same but the tissue on which it rests shrinks deeper into the neck,

leading to the erroneous conclusion that the nodule itself has regressed. Beierwaltes, in Michigan, has stated that nodules so rarely disappear under thyroid medication that he routinely advises surgery if the goiter causes compression or deviation of the trachea. Keating has reported that thyroid nodules may disappear on the West Coast and on the East Coast but they do not disappear in Minnesota. Nor do they disappear in Kansas.

A corollary concept, equally fallacious in our opinion, that benignancy or malignancy may be determined by palpation, has prompted many internists, general practitioners, and even some surgeons to withhold cases previously referred for surgery.

At this particular institution the death of two of its prominent and renowned thyroid surgeons has certainly been a factor. The use of radioactive iodine has decreased the total number of thyroidectomies but this is largely in the category of toxic thyroid disease. Other less influential factors have made inroads into this total; these include the high cost of hospitalization and the utilization of government facilities, both those of the Armed Services and of the Veterans' Administration. We are entitled to say only, then, that there has been a great decline in thyroid admissions and thyroid surgery at this institution, probably for the reasons assigned.

The declivitous drop in toxic thyroid disease cannot be wholly explained on the basis of thiouracil derivatives alone, or in conjunction with the utilization of radioactive iodine. It is our opinion that there has been a true reduction in both toxic diffuse goiter and toxic nodular goiter. Whether or not increased consumption of the tranquilizers, antihypertensives and iodine in conjunction with radioactive iodine and thiouracil derivatives is the entire answer, we are unprepared to say at this juncture.

The increased frequency of thyroidectomy for benign nodular goiter and lymphadenoid goiter may well be explained on the basis of a higher index of suspicion for malignancy. At our institution over 11 per cent of the lymphadenoid goiters contain proven concomitant malignancy and over 17 per cent of the adenomatous goiters are malignant. Fowler states that surgery on patients with nontoxic nodular goiter now accounts for 61.8 per cent of all his thyroid surgery because of his awareness of the apparent increase in thyroid cancer. He notes that cancer is the reason for 6.9 per cent of all thyroid operations, at present representing more than three times the incidence of 2.1 per cent reported in 1936. This seems to be the only logical explanation for the relative rise in incidence; any other conclusion seems unwarranted at the moment.

The increased frequency of malignant thyroid disease in relative figures is marked and it is almost

absolute. A summary explanation could be that referring physicians are more selective in their referrals and that we are increasingly more selective in our surgery. A corollary concept, that we are operating on many more adenomatous goiters and would expect to find more malignancies therefore, may also be entertained. Regardless of any reasonable explanation or teleological theorizing, cancer of the thyroid at this institution has increased alarmingly in the last ten years.

Summary and Conclusions

An analysis of nearly 4,000 thyroidectomies spanning a 25 year period at the Hertzler Clinic has revealed certain changing trends in thyroid disease. These trends may be peculiar to this institution but they are presented for the record. Total admissions for thyroid disease declined, as did the incidence of multinodular colloid goiter, toxic diffuse goiter, and diffuse colloid hyperplasia. Adenomatous goiter, lymphadenoid goiter, and malignant thyroid disease increased greatly. Partial explanations are offered but the complete answers remain obscure.

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Cancer of the lip is an easily detected and easily treated common malignant tumor that lends itself to a high permanent cure rate. Dr. Franklin L. Ashley and colleagues of Los Angeles reported on 254 patients, 149 of whom were followed up for five years or longer. Only 32 per cent were outdoor workers; 10 per cent were nonsmokers and seven per cent were pipe smokers. Excision was employed in 106 patients and radiotherapy in 43 patients. In the surgical group, 87 per cent were free of tumor for five years; with irradiation, 77 per cent were free of tumor. With reoperation the five-year survival rate was 90 per cent for the surgical group and 91 per cent for the irradiated group. Significantly, 60 per cent of patients with recurrences after x-ray therapy were salvaged by subsequent operation.—*Am. J. Surg.*, Oct., pp. 549, 551.

Anemia—

—A Symptom, Not a Disease

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IN THIS ENLIGHTENED DAY it seems superfluous to remind practicing physicians of the aphorism "anemia is a symptom, not a disease." Yet it is surprising how many patients are seen who give a history of receiving injections, pills, capsules, and whatnot for a period of years supposedly for anemia. The reason for the prolonged treatment is not clear, since in many instances the hemoglobin and hematocrit values are within normal limits. Presumably, the treatment is continued because the patient does not feel well, and not because of the level of the hemoglobin. It was thought, therefore, that the orderly approach to the problem of anemia as used at the Hertzler Clinic would be of interest to other practitioners in the state.

We'd like to re-emphasize another "old saw," namely: "there is no substitute for a good history and a complete physical examination." In females, the menstrual and child-bearing history is of primary importance. The profuseness of the flow, the presence of clots, and the number of pads used are important bits of information. In regard to the latter, the use of more than a dozen pads is fairly good evidence of menorrhagia. The number of children with the age of the youngest, as well as the number of miscarriages and the need for transfusions in the past are also important data. Although gastrointestinal lesions such as duodenal ulcer are more important as a source of blood loss in males than in females, it should be remembered that women can and do have similar lesions, and that both sexes are capable of bleeding from any orifice. For the purpose of this paper the anemias associated with chronic disease, uremia, rheumatoid arthritis and other collagen diseases, and the malignant diseases are omitted, although a good history and physical examination should lead the physician to suspect such a disease and make the appropriate laboratory tests to establish the diagnosis. In the physical examination one must search for petechiae, note ecchymotic areas, observe the color of the skin, nail beds, and mucous membranes; determine the presence or absence of hepatosplenomegaly; hemorrhoids; melena; and evidence of epistaxis and bleeding from the gums.

Having done this and having established that an anemia is present, which in our institution is done by a determination of the hemoglobin (normal range,

males 14-18 Gm.; females 12-16 Gm.) ; and the hematocrit (normal range for males: 42-54 per cent, females: 38-48 per cent), the next step is to attempt to fit the patient into the known patterns of anemia which for simplification we have divided into three categories:

The concept that anemia is a symptom and not a disease is re-emphasized. The classification of anemia into three categories: (1) lack of production; (2) blood loss; and (3) excessive blood destruction, is suggested as a broad framework within which to undertake the establishment of the etiology.

(1) those due to lack of production, (2) those due to blood loss, and (3) those due to excessive destruction. This is probably an oversimplification, but it at least gives the physician a framework within which to proceed. It should be pointed out, however, that in some instances there is a combination of factors and overlapping of the categories may be present. Nonetheless, this division provides orientation points from which the investigations may start. Brief case reports will be given to illustrate the various categories.

Lack of Production

The classic instance of failure of production is exemplified by pernicious anemia.

CASE REPORTS

Case 1

A 60-year-old white man was admitted to the hospital January 15, 1963, complaining of weight loss of approximately 30 pounds and anorexia of several months' duration. Physical examination was not remarkable except for the lemon tint to his skin. Laboratory procedures revealed a hemoglobin of 5.2 Gm. with a hematocrit reading of 16 per cent. No free hydrochloric acid was demonstrated in the stomach after stimulation with betazole hydrochloride (Histalog®). X-ray examinations of the gastrointestinal tract were negative. Bone marrow aspiration revealed a megaloblastic arrest with 25 per cent megaloblasts; a Schilling test showed absence of radioactive cobalt (CO^{57}) in the urine following its ingestion. Six days after the institution of B-12 therapy the reticulocyte response was 11.9 per cent. When last seen on April 26, 1965, he was taking 50 micrograms of B-12 monthly, and

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the hemoglobin was 15.5 Gm., the hematocrit reading 40 per cent.

The following case is placed in the same category but for a different reason:

Case 2

A 35-year-old Gravida II, para-two, white woman whose youngest child is 12 years old, was admitted to the hospital on January 3, 1965, with the chief complaint of weight loss. The history revealed that during the year preceding admission she had lost 50 pounds in weight, and that the greater portion of the weight had been lost during the two months prior to admission. She attributed the weight loss to nausea, vomiting, and the presence of painful canker sores in her mouth. In addition, she had had two or three loose stools daily. The physical examination revealed a sallow-colored, listless woman who presented with a small painful ulcer on the right buccal mucosa. There was a sinus tachycardia and the liver edge was just palpated on deep inspiration. The hemoglobin was 7.8 Gm., hematocrit 23 per cent. The serum iron was 141 mcg. per cent; a Schilling test showed 18.9 per cent of the ingested amount of CO^{57} excreted in the urine (the normal is greater than 8 per cent). Bone marrow aspiration showed hypoplasia. While diagnostic procedures were in progress it became necessary to administer transfusions of packed red cells. She remained a diagnostic problem until February 9, when in desperation and expecting to establish the diagnosis of lymphoma, an exploratory laparotomy was done. While no lymphoma was found, a biopsy of the jejunum was compatible with adult celiac disease. Thereafter, the treatment with parenteral vitamin B complex, folic acid, and a gluten-free diet resulted in marked improvement. When last seen on March 11, 1965, her hemoglobin was 12.4 Gm. and she had gained ten pounds.

DISCUSSION

The above case illustrates a disturbance in the production of red cells due to failure of absorption of necessary building materials from the intestinal tract. Initially the parenteral supplementation of the diet and later the proper dietary regimen resulted in cure of the anemia. It is interesting to note that the marrow, rather than showing a maturation arrest as one might expect with sprue, showed a hypoplasia. It might be of interest to mention also two cases treated with oral iron without response, both of whom had completely negative workups except for low serum iron determinations (less than 60 mcg.), and both of whom were then treated parenterally with iron dextran (Imferon®). The hemoglobin returned to normal levels and has remained so for two years.

In dealing with the anemias one must always ascertain the number and kind of drugs the patient may be taking. The fact that drugs used in the treatment of other conditions may cause anemia is sometimes forgotten as seen in the next case.

Case 3

A 60-year-old white female was admitted to the hospital on March 30, 1965, with the chief complaint of pain in the left thigh of two weeks' duration. Walking was painful and she had also developed erythema along the anterior right tibia as well as several ulcerations on her back. Past history revealed that she had been previously hospitalized on the psychiatric service. On physical examination there was a severe cellulitis of the left thigh, beginning cellulitis of the right tibia, scattered furuncles, acute follicular tonsillitis, and pharyngitis. The admission blood count revealed hemoglobin 9 Gm., hematocrit 28 per cent, white blood cells 1,350, with a differential count of neutrophils 41, lymphocytes 46, monocytes 13. Bone marrow aspiration showed a hypocellular marrow with an increase in myelocytes and a decrease in neutrophils and band forms. A search of the patient's previous chart revealed that she had been taking chlorpromazine hydrochloride (Thorazine®). This drug was discontinued, antibiotics administered, and two weeks later the blood count was: hemoglobin 11.7 Gm., hematocrit 37 per cent, white blood count 7,150, basophils 3 per cent, neutrophils 35 per cent, lymphocytes 60 per cent, and monocytes 2 per cent.

DISCUSSION

It is well to remember that the treatment producing the miraculous recovery for a colleague, may also be the source of your problems. Chlorpromazine hydrochloride had the above patient's schizophrenia well controlled; however, it was also causing her anemia. In regard to any blood dyscrasia the importance of the history of drug ingestion cannot be overemphasized whether they be proprietary or prescription items.¹

Due to Blood Loss

In the blood loss category, the cases with obvious hemorrhage constitute no problem, neither are the women with a history of menorrhagia. In most instances the hypochromic microcytic red cells seen on the peripheral blood smear will confirm the clinical impression. If any doubt remains a serum iron determination will be definitive in establishing iron deficiency as the cause of the anemia. The prompt response to oral iron as manifested by a rise in hemoglobin of 2 Gm., or a hematocrit rise of 5 per cent or better in three weeks is a fairly accurate indication that a given anemia is due to iron deficiency.² One must not forget, however, the occult gastrointestinal bleeder as seen in the following case:

Case 4

A 72-year-old white man was admitted to the hospital on May 6, 1963, with the chief complaint of poor color. Four months previously he had developed herpes

zoster over the left chest; since then he had had difficulty in sleeping because of residual pruritus. In addition he stated that friends had commented on his poor color and had suggested that he have a checkup. He had no other complaints except exertional dyspnea. The physical examination was not remarkable except for a Grade II apical systolic murmur which was transmitted into the axilla but not the neck, and a palpable liver. The blood count showed the hemoglobin to be 6 Gm., and the hematocrit reading 25 per cent. A gastric analysis revealed a hypochlorhydria; radioactive B-12 uptake was 17 per cent in 24 hours. Gastrointestinal x-rays revealed an occasional diverticulum of the sigmoid colon, and a deformity of the duodenal bulb. He was discharged on oral iron and an ulcer regimen and returned to the Clinic on June 11, 1963, at which time he stated that he felt much better. The hemoglobin was 8.7 Gm. and the hematocrit reading 31 per cent. At that time it was decided to continue him on the same treatment regimen; he was not seen again until October 1, 1963. Despite the fact that he stated he was feeling much stronger, the hemoglobin was only 9 Gm. He was advised to re-enter the hospital for further studies but did not do so until November 18. At that time a barium enema revealed a lesion of the ascending colon which at resection proved to be a Grade II adenocarcinoma. When last seen on April 27, 1965, the hemoglobin was 14.2 Gm. and the hematocrit reading 43 per cent; there was no evidence of recurrence or metastasis.

The above patient illustrates a classic case of ulcerating carcinoma of the ascending colon as a cause of anemia. His failure to respond to oral iron and an adequate ulcer regimen was the indication to continue seeking a reason for the anemia.

Due to Excessive Destruction

Lastly we come to those anemias due to increased blood destruction. Here the family history is of importance in order to rule out the familial disorders, such as congenital spherocytosis, and the hemoglobinopathies. In this regard it is almost axiomatic to consider any Negro with an anemia as having sickle cell anemia until proved otherwise. Probably the simplest laboratory test which will lead to a suspicion of hemolytic anemia is a reticulocyte count. An elevated reticulocyte count is indicative of active erythropoiesis. If it is known that it is not in response to specific anemia therapy (e.g., B-12) there can be only one cause, namely a red cell hyperplasia in the marrow. Reticulocytosis, then, in the presence of anemia indicates a decompensation; otherwise there should not be an anemia; the mechanism being that the destruction of the erythrocytes exceeds their manufacture; i.e., hemolytic anemia. Bone marrow aspiration will reveal active proliferation of the erythrocytic series frequently with a reversal of the myelo-

erythrocytic ratio. Normally this ratio ranges between 2-5:1 in favor of the granulocytes. Oftentimes the Coombs' antiglobulin test will be positive, although this is not a constant finding. In all instances, however, the red cell survival as determined by radioactive chromium determination (Cr^{51}) will be found to be decreased from the normal of 28 to 32 days.

Case 5

A 71-year-old white woman was admitted to the hospital on October 28, 1964, with the chief complaint of pain in the left ear. There was also associated dizziness and she complained of hearing her heart beat so loudly that it interfered with her hearing ordinary conversation. The physical examination was essentially negative except for hemorrhages in the right optic fundus, bilateral sclerosis of the ear drums, and large external hemorrhoids. The hemoglobin was 7 Gm., hematocrit 21 per cent, and the peripheral blood smear was reported as containing three nucleated red blood cells per one hundred white cells. Gastric analysis with Histalog® stimulation was positive for free hydrochloric acid; a reticulocyte count was reported as 90 per cent (normal less than two). Two stools were reported as positive for occult blood, but the Coombs' test was positive in both the direct and indirect determinations. The serum bilirubin was 1.2 mg., with direct being 1.1 mg. per cent, and the indirect 0.1 mg. per cent. X-rays of the gastrointestinal tract were negative. A Schilling test revealed 8.9 per cent excretion of the radioactive cobalt in 24 hours. Red cell survival studies using Cr^{51} showed a half-life of eight days. She was treated with prednisone and when last seen on March 26, 1965, her hemoglobin was 16 Gm. and the hematocrit 46 per cent. At that time she had been off prednisone for six weeks without evidence of recurrence.

DISCUSSION

Although this case is fairly typical of the idiopathic hemolytic anemia seen in hospital practice, one must not relax vigilance in following these cases since the anemia may be merely a manifestation of another disease. We recently had the unpleasant experience of following such a case for a period of 18 months at which time it became apparent that she also had chronic lymphatic leukemia.

Comment

It can thus be seen that the establishment of a diagnosis in the patient who presents with an anemia depends a great deal upon the index of suspicion in the mind of the attending physician. When this is supported with a few well chosen laboratory tests the diagnosis becomes much more apparent. The schema presented will not be effective in establishing

(Continued on page 60)

Carcinoma of the Larynx

Twelve Years' Experience in Its Management

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THE CURRENT CONCEPT of the treatment of carcinoma of the larynx is surgical extirpation or some combination of surgery and irradiation.¹ In our experience the basic and most satisfactory treatment for invasive laryngeal malignancy is total laryngectomy, combined with a modified bilateral radical neck dissection. This is also the treatment of choice where extension of the tumor to the extrinsic larynx has occurred, particularly to the aryepiglottic folds and areas of contiguous involvement.² Our experience suggests there is limited value in the many popular varieties of partial laryngectomy, as these procedures are technically inadequate for extirpation of the tumor. This has been demonstrated by the degree of involvement seen in cases presenting at the Hertzler Clinic over a period covering the past 12 years (*Figure 1*).

The surgical principle of en bloc excision of the tumor-invaded organ with regional lymph node dissection was carried out. The degree of involvement was established by preoperative laryngoscopy, and the inherent characteristics of the cancer were determined by biopsy and histological examination. In all cases positive histological diagnosis was established. Cytology studies were done concurrently.

The use of elective modified radical neck dissection, in the absence of palpable lymph nodes, is of particular importance in vestibular and marginal lesions, both of which are accompanied by a higher percentage of metastases.³ A preliminary tracheostomy was rarely needed, being indicated by the degree of laryngeal obstruction present. General anesthesia was established via endotracheal intubation, and almost without exception could be accomplished quite easily. Transoral intubation was followed by transfer of sterile endotracheal intubation equipment, at the time of the establishment of the permanent tracheostomy stoma. There has been no difficulty encountered during this transfer and a tight closed system with a clear airway was assured throughout the procedure by the inflated endotracheal balloon.

Procedure

An encircling preparation of the anterior and lateral surfaces of the neck is accomplished using pHisohex surgical scrub. The neck is slightly hyper-

A 12-year experience in management of 32 cases of laryngeal carcinoma is presented. Seventeen radical laryngectomies were performed. Overall three-year survival has been achieved in 34 per cent. Radical laryngectomy with modified bilateral neck dissection is the treatment of choice. Adjunctive measures of continuous postoperative suction using Hemovac drainage unit and a routine Stamm gastrostomy feeding tube have been extremely helpful. A high correlation between laryngeal cancer and heavy cigarette smoking has been found to exist. The role of combined surgery-irradiation therapy requires more definition.

extended. An inclined "Y" incision is preferred. Skin flaps, including the platysma, are elevated on all sides to expose the area from the lower edge to the mandible superiorly to the suprasternal notch inferiorly and laterally from the midline to the anterior border of the sternocleidomastoid muscles. The lateral neck dissection is symmetrically performed initially. The areolar tissue of the suprasternal notch is liberated; the dissection is carried laterally exposing the anterior border of the sternocleidomastoid muscles. The vascular sheath is opened and the vascular compartment dissected, stripping the internal jugular vein and carotid artery of associated areolar tissue and lymph nodes. The belly of the omohyoid is sectioned. The dissection is carried upward to the tail of the parotid gland. Care is taken to preserve the phrenic and vagus nerves and thoracic duct. The dissection is then directed anteriorly toward the midline, stripping the fascia of the posterior belly of the digastric muscle and the

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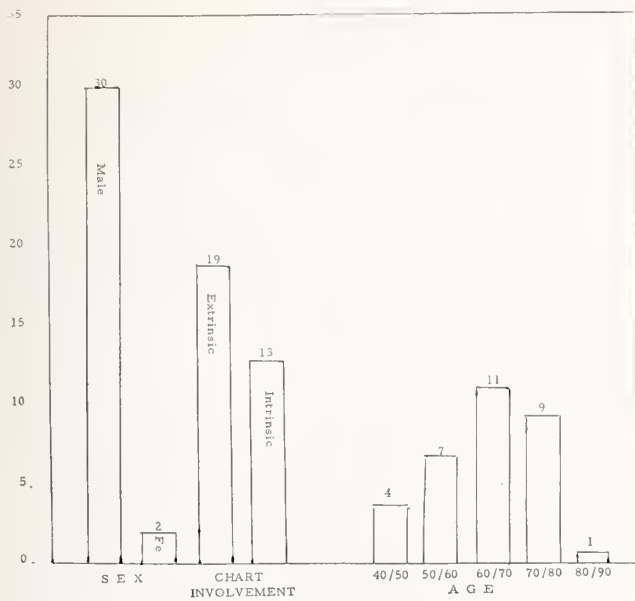


Figure 1

stylohyoid. The body of the hyoid bone is removed subperiosteally and left attached to the specimen. The oral pharynx is entered by incision in the midline into the pre-epiglottic space. The pharyngeal wall is incised laterally through the lateral margin of each pyriform sinus, then vertically downward transecting the greater cornu of the thyroid cartilage in the path of the incision of the lateral pharyngeal wall. Attention is now shifted to the isthmus of the thyroid, which is divided. The contralateral lobe is preserved and rotated laterally on a stalk consisting of the inferior thyroid artery and vein. The superior artery and vein are transected at the external carotid internal jugular level. The upper pole of the lobe may be preserved. The homolateral lobe is frequently sacrificed with the specimen. The trachea is now opened at a level two rings below the cricoid cartilage, and the transfer of anesthesia tubes accomplished. The tracheal opening is beveled upward on membranous surface to increase the caliber of the permanent tracheostomy stoma. The tracheo-esophageal septum is developed upward and the specimen delivered. The anterior wall of the pharynx and proximal esophagus is reconstructed using an inverting Connell suture of No. 2-0 atraumatic chromic catgut, oversewn with a running suture of the same material. The permanent tracheostomy is sutured after a hemieliptical section of skin is excised from either side. The stoma is tailored accurately and held in position with interrupted No. 0 silk sutures. Multiple perforated polyethylene drainage tubes are exteriorized dependently through lateral skin flaps, and continuous suction applied, using the Synder-Hemovac unit. The platysma and subcutaneous fascia are closed by layers with No. 3-0 chromic catgut and the skin closed with vertical

mattress sutures of No. 4-0 alloy steel wire. A sterile compression dressing is applied. Using new operative equipment, a classical Stamm type left upper quadrant gastrostomy feeding tube is established. A short No. 9 tracheal cannula is worn during the post-operative period.

Discussion

A 12-year experience in the management of carcinoma of the larynx is presented. A total of 32 cases were diagnosed by laryngeal biopsy as malignant; 27 were squamous cell carcinoma, as would be expected (see Table 1). In 23 positive cytology was found. A sex ratio of 30/2 male predominating and 90 per cent were Caucasian. Ninety-two per cent smoked in excess of one package of cigarettes daily and had smoked at least 20 years. Age range was from 40 through 80,

TABLE 1

Histological Diagnosis	Number	Cytology
Squamous cell carcinoma	27	Positive 23
Adenocarcinoma	1	Negative 9
Undifferentiated anaplastic ca . .	1	
Carcinoma in situ	3	

with maximum incidence in the 6th decade (Figure 1). Lesions were classified as intrinsic if limited to the true vocal cords with or without cervical lymph node metastasis; all others were designated extrinsic.^{1, 5} Hoarseness was the heralding symptom of intrinsic carcinoma, and pain, hoarseness, and dysphagia of extrinsic lesions (Table 2).

The modalities of treatment consisted of surgery alone, irradiation alone, and a combination of surgery and irradiation. If the neoplasm was treatable surgically, then it was felt irradiation pre- or postoperatively was not indicated (Table 3); 14 cases were treated by surgery alone. Eight have survived five years or more. One patient survived four years; one, three years, and two survived two years after surgery. Two patients are alive and well; however, it has been less than one year since surgery; ten patients were treated by irradiation alone and resulted in no survivors over 18 months. Three survived less than one year. It is only fair to state, however, that four of these cases were considered beyond any possibility of surgical resection. A combination surgery-irradiation was considered necessary in six cases; one survived four years; three failed to survive beyond two years, and two failed to survive 15 months.

Our experience is limited to two cases in whom

TABLE 2

<i>Presenting Symptoms</i>	<i>Intrinsic</i>	<i>Extrinsic</i>
Hoarseness	13	9
Pain	3	18
Dysphagia	2	14
Hemorrhage	0	2
Cough	10	6
Weight loss	3	12

laryngofissure or partial laryngectomy procedures were attempted, but these resulted in failure. This resulted in recurrence, regional lymph node metastasis, and required laryngectomy with irradiation, suggesting a loss of cure opportunity. Irradiation as a primary form of therapy was not successful. Three postradiation cases died of massive, sudden hemorrhage. Irradiation preoperatively was believed to convert nonresectable lesions to resectable ones, but our experience negated this belief.⁴ Where previous irradiation had been administered the incidence of wound infection, tissue slough, hemorrhage, and pharyngeal fistula was increased. Irradiation postoperatively has been effective in control of isolated lymph node recurrence but of limited benefit in major local recurrence. The role of combined therapy requires more definition.

Several adjunctive procedures have been found useful. Simultaneous modified radical neck dissection with or without palpable cervical adenopathy has resulted in improved survival. Continuous postoperative Hemovac unit suction has been found an effective method of insuring drainage and adherence of skin flaps to underlying tissues. Routine Stamm gastrostomy has provided a simple method of alimention, permitting complete rest of the cervical tissues and a decrease in the incidence of hypopharyngeal fistula which previously was a major, annoying, and expected complication. Sacrifice of the sternothyroid, sternohyoid, and omohyoid muscles is believed to improve the en bloc dissection and reduce the incidence of recurrence. Avoidance of retained secretions, which may become crusted and obstructive, by frequent aspiration, adequate moisture by cold steamer, and the use of detergents such as alevaire in a nebulized mist, aid in reducing nursing care problems. Postlaryngectomy speech is no problem, as excellent speech by vibrator or esophageal speech technique is readily mastered.

Summary

A 12-year experience in management of 32 cases of laryngeal carcinoma is presented. Seventeen radical laryngectomies were performed. Overall three year

TABLE 3

<i>Treatment Modality</i>	<i>Survival in Years</i>									
	LESS THAN									
	1	1	2	3	4	5	6	7	8	
Surgery alone	14		2	2	1	1	6			2
Irradiation alone	10	3	7							
Combined	6		2	3	1					
Refused treatment	1		1							
Lost to follow-up	1		1?							

survival has been achieved in 34 per cent. Radical laryngectomy with modified bilateral neck dissection is the treatment of choice. Adjunctive measures of continuous postoperative suction using Hemovac drainage unit and a routine Stamm gastrostomy feeding tube have been extremely helpful. A high correlation between laryngeal cancer and heavy cigarette smoking has been found to exist. The role of combined surgery-irradiation therapy requires more definition.

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Anemia

(Continued from page 57)

the cause of all the anemias encountered; however, it will certainly result in eliminating the more common.

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Massive Neurofibrosarcoma

of the Anterior Abdominal Wall

W. D. HOOFER, M.D., F.A.C.S., *Halstead**

NEUROFIBROSARCOMAS are uncommon malignant tumors comprising 0.67 per cent of all cancers.⁵ They usually arise in preexisting neurofibromas and therefore are almost always associated with von Recklinghausen's disease and have been followed over prolonged periods by Stout; Poole and Deeley, and Krementz and Shaver.¹⁰ In approximately 13 per cent of these patients malignant changes occurred in the neurofibromas.

There is considerable variance in terminology in the literature relative to the designation of neurofibroma and neurilemmoma. The latter has been labeled: neurinoma, perineural fibroblastoma, schwannoma, peripheral glioma, and schwannoglioma.²⁰ In some articles, all of the above terms are used interchangeably, which can add to the reader's confusion. Of interest is the variability in the clinical course of these tumors.

As early as 1829 Wood, in an article entitled "Observations on Neuromata," suggested that neuromas arose from the nerve sheath and not from the nerves themselves. Von Recklinghausen in his original article in 1881 gives the impression that he thought these tumors arose from the nerve proper. While Bailey and Herrmann, and Tarlov still question the nerve sheath origin of these tumors, Nageotte, Masson^{13, 14} and Murray and Stout give ample evidence of the origin of neurofibromas and neurilemmomas from Schwann cell.

In 1946, Stout characterized the differences between neurofibroma and neurilemmoma, clarifying the terminology. He described the neurofibroma as a diffuse proliferation of schwannian cells, axons sheathed with schwannian cells, and of connective tissue arranged in a haphazard fashion. This growth may occur at the end of a nerve fiber or expand the sheath of a peripheral nerve. Metaplasia may be noted with the formation of muscle cells, bone, cartilage, fat, and malignant transformation. A true capsule is not present. The neurilemmoma is described as always being encapsulated and attached either to a nerve sheath or to the epineurium of larger nerves. Most are solitary, although they may occur with neurofibromatosis. The neurilemmoma frequently has

areas of necrosis and cyst formation, while this is rarely seen in neurofibromas. The most striking difference between the neurofibroma and neurilemmoma

Neurofibrosarcoma is a slow growing, locally invasive, malignant tumor which usually arises in a preexisting neurofibroma. It frequently reaches a large size but metastasizes late; yet 30 to 40 per cent of the patients with this tumor have distant metastases when first seen.

is the apparent benign nature of the latter tumor. Stout reviewed 144 cases of neurilemmoma and found no evidence of local or systemic malignancy. In contrast, an average of 13 per cent of neurofibromas undergo malignant change.

Neurilemmomas appear to be rather evenly distributed throughout the body.^{11, 12, 20} Many intercavitary and gastrointestinal tumors have been reported. Neurilemmomas seem to show a predilection for the sympathetic nervous system in the paraspinal areas.^{4, 17, 22} Neurofibromas, however, are more frequently found on the skin and along peripheral nerves, although visceral and intercavitary tumors are reported.

Since most neurofibrosarcomas arise in preexisting neurofibromas,² their general body distribution is similar. These tumors are relatively slow growing, but paradoxically, approximately 30 to 40 per cent of patients have distant metastases when first seen.^{2, 11, 17, 20} Early growth appears to be expansile and the metastases are said to occur late in the course of the disease. A pseudocapsule is apparent grossly, but microscopically, malignant cells are seen outside this layer. For this reason, recurrence following local excision is frequent and radical excision is usually advised. These tumors are generally resistant to x-ray therapy and surgical excision appears to be the only effective therapy.

A review of the English literature reveals that neurofibrosarcoma of the anterior abdominal wall is a rare disease: only four cases have been previously reported.^{11, 12} In addition, von Recklinghausen's dis-

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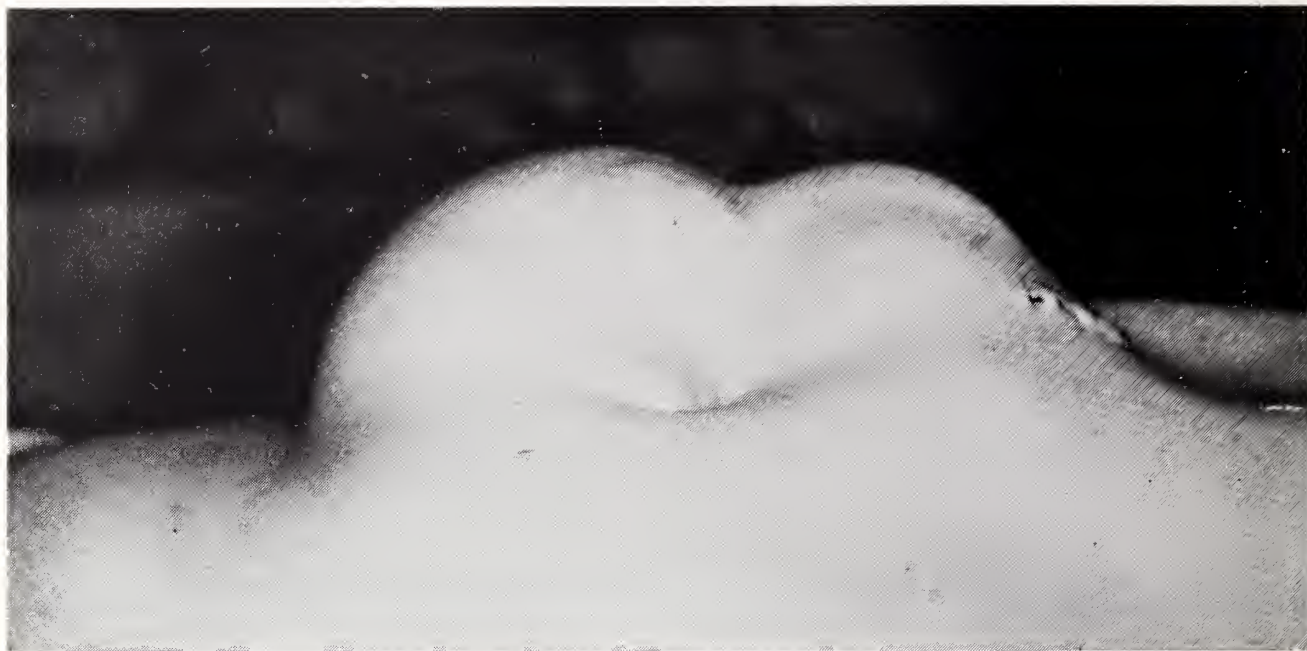


Figure 1. Preoperative photograph of the anterior abdomen. The tumor extends from the pubis to the epigastrium.

ease has been evident in all of the reported cases. The following is a case summary of a 60-year-old white male with a massive neurofibrosarcoma of the anterior abdominal wall, and without the stigmata of von Recklinghausen's disease.

Case Summary

L. N. entered the Hertzler Clinic complaining of a nontender mass on the anterior abdominal wall (*Figure 1*). This mass had been slowly enlarging during the preceding 15 years but had increased in size more rapidly during the two months prior to admission. This mass purportedly arose in an area of trauma just to the right of the umbilicus.

The physical examination demonstrated a 20×15 cm., very firm, irregular tumor involving the entire anterior abdominal wall. There was no evidence of groin or axillary adenopathy, nor were satellite lesions evident.

The admission laboratory findings were normal; however, the chest x-ray demonstrated a lesion in the right upper lung field suggestive of a solitary metastasis (*Figure 2*). X-rays of the primary tumor demonstrated many calcium deposits. The gastrointestinal x-ray series proved normal.

A biopsy of the tumor (*Figure 3*) was reported as neurofibrosarcoma. The tumor was excised, along with approximately 90 per cent of the anterior abdominal wall. The resected specimen (*Figure 4*) weighed four and one half pounds. The resultant fascial defect was repaired with Marlex mesh. A pri-

mary skin closure was effected with some difficulty. His postoperative course was satisfactory.

He reentered the hospital two months following the abdominal surgery and the solitary metastasis was removed by right upper lobectomy. Again his postoperative course was uneventful.

To date his follow-up has been satisfactory and he has returned to work as a mechanic.

Discussion

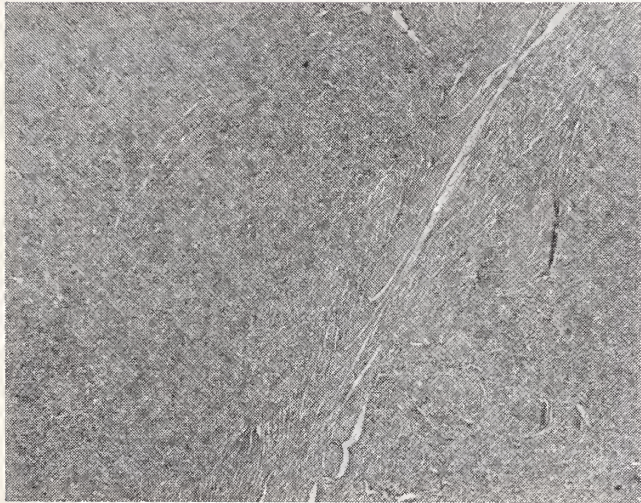
Reports of tumors on the external surface of the body which reach massive size before the patient seeks medical attention, have been a relative rarity since 1930. The only reason the above patient gave for seeking help at this time was that the tumor had begun to increase in size more rapidly and that this was making him "nervous." He steadfastly denied any local discomfort from this four and one half pound tumor, or from its pulmonary metastasis.

During the past two decades, removal of solitary pulmonary metastases has become an acceptable procedure.^{5, 7, 10} As pointed out by several authors,^{6, 8, 19, 23} even if a cure is not effected, prolonged palliation is frequently accomplished.

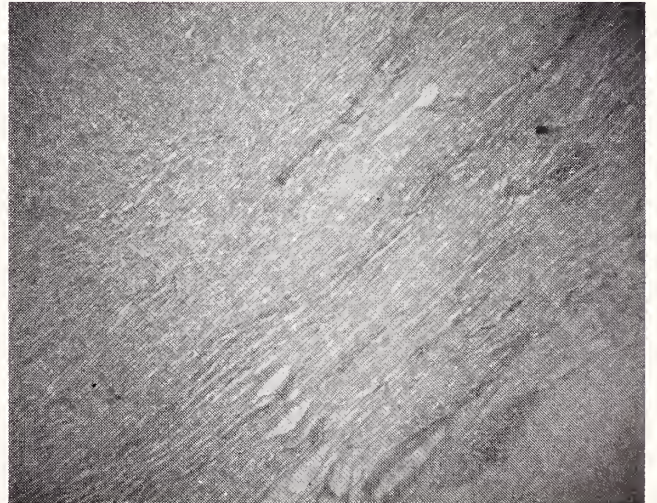
Most pulmonary metastases occur from malignant tumors of the female breast, pancreas, colon, rectum, prostate, kidney and soft tissue sarcomas. Most solitary pulmonary metastases seem to arise from tumors of the colon, rectum, kidney and soft tissue sarcomas.¹⁸ Of significance, Rosenblatt reports the most favorable cases have occurred with solitary metastases from soft tissue sarcomas.



Figure 2. Frontal and lateral views of the chest showing the solitary metastasis in the right upper lobe.



A



B

Figure 3. Photomicrographs of the primary abdominal wall tumor, *A*, and the pulmonary metastasis, *B*, demonstrating a low-grade neurofibrosarcoma.

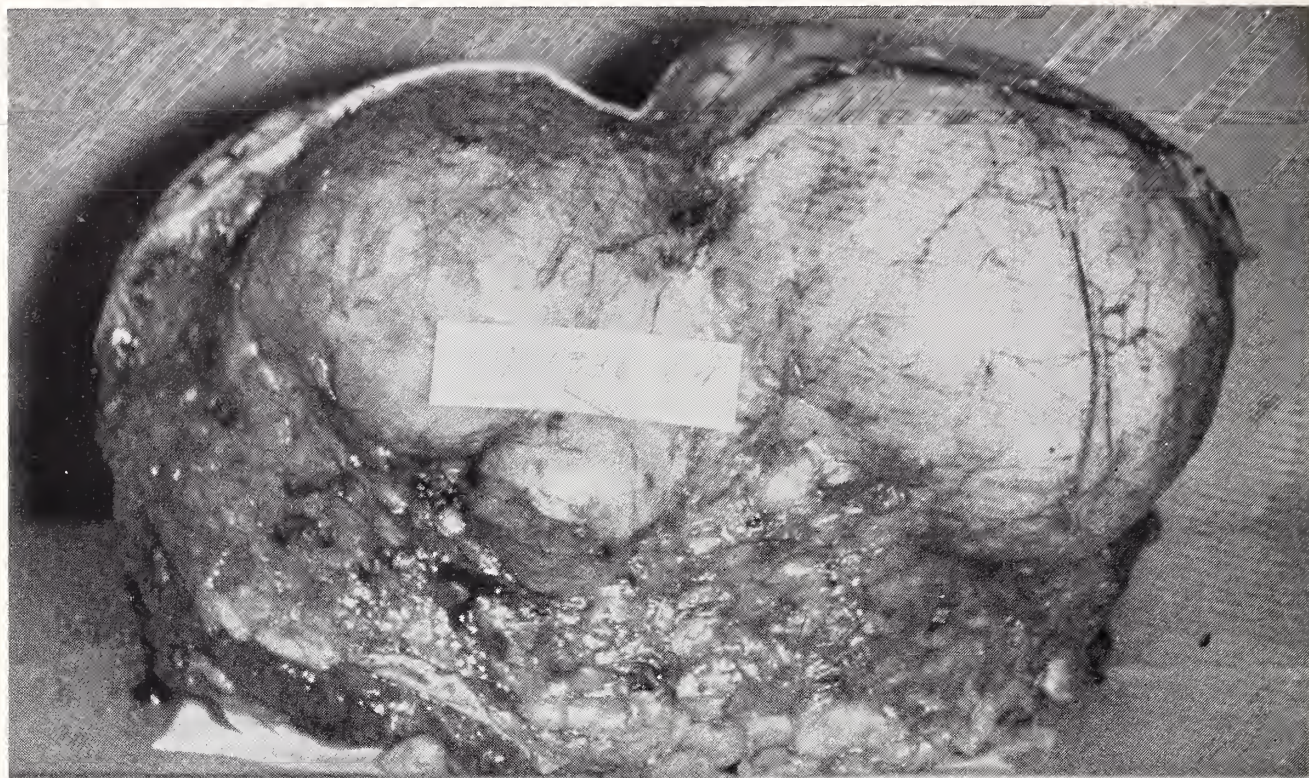


Figure 4. Photo of resected specimen containing the four and one half pound tumor and the full thickness of the anterior abdominal wall.

While many metastases are asymptomatic, the solitary peripheral metastases may produce symptoms earlier than primary lung tumors by bronchial compression and irritation stimulating cough.²³ Other symptoms of hemoptysis, pneumonia and shortness of breath are rarely associated with solitary metastatic disease.

The best long term results are associated with the most stringent case selection. Many instances are recorded in which a "solitary metastasis" is found to be multiple at the time of thoracotomy.^{6, 8, 19, 23} Authors now recommend that the criteria illustrated in *Table 1* should be met before resection of metastatic lesions is attempted.

In certain instances where a metastasis is present

from a slow growing and well differentiated tumor, early resection of the metastasis is recommended. The latter recommendation applies to the case presented in this article, since a solitary pulmonary metastasis was present when he sought medical attention. Due to the relatively slow growth potential of this tumor, early pulmonary resection was performed in an attempt to effect a cure. At the time of this writing, a one year follow-up reveals no evidence of recurrence.

Summary

Neurofibrosarcoma is a rare tumor which usually arises in a preexisting neurofibroma, grows slowly and metastasizes late. However, metastases are frequently present when medical aid is sought.

A case of massive neurofibrosarcoma of the anterior abdominal wall with a solitary pulmonary metastasis, each treated by resection, is presented.

The philosophy of pulmonary resection for pulmonary metastases and the usual criteria for patient selection is discussed.

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TABLE 1

RECOMMENDED CRITERIA FOR RESECTION OF SOLITARY PULMONARY METASTASES

1. Local arrest of primary disease.
2. Survival of 1 or 2 years after primary operation before metastases have become evident.
3. The lesion must be proved to be solitary.
4. Metastases must be in the periphery of the lung and amenable to minimal pulmonary resection.
5. The original tumor should be of low grade malignancy.

Glomus Jugulare Tumors

*Variable symptoms may bring the patient
to any of several physicians*

RUTH MONTGOMERY-SHORT, M.D., *Halstead**

JUST 14 YEARS AGO the JOURNAL OF THE KANSAS MEDICAL SOCIETY published the article on glomus jugulare tumors by Gibson and Proud, which to this author was the Open sesame! to a new clinico-pathologic entity which only six years prior had been described by Rosenwasser. The recognition of this tumor had been made possible by the discovery by Guild in 1941 of the normal glomus jugulare body.

Hoople's experiences with the then unknown glomus jugulare tumor antedated Rosenwasser's article by some 20 years, and are fascinating and thrilling accounts.

Gibson and Proud noted in 1951 that 21 proved and 13 probable cases had been cited; Winship and Louzan stated that only 42 proved cases of glomus jugulare tumor had been reported. At the time of Huppler's and colleagues' presentation in 1955, over 100 cases had been recorded, while by 1958 Simpson and Dallachy listed 172. Hawk and McCormack in 1959 examined personally 165 case abstracts of the 190 cases in the literature and added six of their own. By June, 1962, Alford's and Guilford's comprehensive study of tumors of the glomus jugulare listed 305 cases in the literature and added 11 of their own, making a total of 316. References to the earlier cases are in the above author's bibliographies. Further cases have been reported in the past three years, and this paper will add three more to the ever-growing list.

Pathology

This comparatively recently recognized tumor is of special interest to family physicians, otologists, neurologists, pathologists, and surgeons, for each tumor in its time may affect many organs of the head and neck. The slowly growing tumor has been given many names as reviewed by Newman and by Carey *et al.* It is histologically related to the carotid body tumor and develops in the minute glomus jugulare body, situated in the middle ear or in the adventitia of the jugular bulb. Ladenheim and Sachs reviewed theories relative to the origin of the glomerula found in the region of the middle ear and presented some newer ideas. The tumor more or less faithfully reproduces the morphology of the normal structure and presents all the symptoms of otic or of neurologic

involvement or of both. Siekert stated "The tumor may arise in the middle ear primarily or may invade from the jugular fossa. It may continue laterally, destroy the tympanic membrane and appear in the external auditory canal or it may extend into the petrosal, mastoid, occiput, or posterior cranial fossa." By expanding within the jugular fossa the tumor

Three cases of the comparatively recently recognized glomus jugulare tumor are presented with the hope that this may increase the index of suspicion when symptoms of unilateral impaired hearing, pulsating tinnitus, and signs of a vascular tumor in the external ear canal are present, especially when related with involvement of VII through XII cranial nerves.

often encroaches upon cranial nerves IX, X, and XI (the syndrome of the jugular foramen, which each of our three patients presented). By further extension into the cranial cavity, even CN XII and more rarely the CNs V and VI may become paralyzed. CN VII not infrequently shows palsy because of its intimacy with CN VIII.

The earliest and most common symptoms have been unilateral buzzing or pulsating tinnitus and impaired hearing, wherein lies the otologist's role; however, these symptoms are often first presented to the family doctor.

The radiologist's role is important from both diagnosis and treatment angles as evidenced by reports from Rice, Eraso, Rucker, Riemenschneider *et al.*, Miller, Williams, Bradshaw, Borsanyi, Foote, and others. Radiographically in our three patients, the widening of the internal auditory meatus and the destruction of petrous bone were conspicuous. (Unfortunately the films of 1951 of case 1 have been destroyed and the films of October, 1965 are too late for publication.)

Clinical Classification

The excellent comprehensive study by Alford and Guilford gave documentation and summation of historical, clinical, pathological, and therapeutic factors, and added new information to the natural history of the disease which permitted classification of patients

* From the Ear, Nose and Throat Section of the Department of Surgery, the Hertzler Clinic, the Hertzler Research Foundation, and the Halstead Hospital.

into five distinct and clinically progressive stages: 0 to IV. According to this staging, one's method of treatment is best determined (as well as prognosis) by the following: Stage 0 and I: tympanotomy or hypotympanotomy or if necessary, radical mastoidectomy; Stage I and II: radical mastoidectomy followed by x-ray therapy; Stage III: radiotherapy alone; Stage IV: palliation by radiation, and neurosurgical decompressions. (All three of our patients are in Stage III.) As noted, the surgeon's role is of special importance in Alford's and Guilford's Stages 0, I and II. Technics for removal of glomus jugulare tumors and surgical experiences have been described by Shambaugh, Shapiro, Sessions, Hoople, Michelson, Arnvig, Lewis and Grant, Weille, and others, while Rosen described an improved biopsy technic.

Clinical aspects of the tumor have been highlighted by Dockerty *et al*, Lattes and Waltner, Lederer, Dill, Snyder, and others.

The pathologist, in the recognition of this entity, has reviewed and reclassified tumors earlier diagnosed as "hemangioblastoma" (as was our first case), "hemangioendothelioma," "endothelioma," "granulation tissue," "simple polyp" and other terms. "The tumors are made up of nests or strands of epithelioid cells bordered or surrounded by a stroma containing capillaries. The capillaries in the fibrous septa are constant, although stains for reticulum may have to be used to demonstrate them clearly. The cells tend to be uniform and large; the nuclei are small and variable in size and shape; the cytoplasm may be vacuolated. Mitotic figures have been observed only very rarely," so wrote Siekert. Comparative photomicrographs are shown by Marshall and Horn.

Case Reports

CASE 1

A. S., white female, age 61, consulted our neurologist on October 9, 1951, after having seen other doctors for difficulty swallowing and choking, left impaired hearing eight to ten years gradually progressing, without pain. Neurological examination revealed no V, VI, or VII cranial nerve involvement, but left-sided loss of the gag reflex, impaired sensation of the posterior two-thirds of the tongue, left recurrent laryngeal nerve paralysis, atrophy and weakness of the left sternocleidomastoid and trapezius muscles, atrophy and fibrillation of the left side of the tongue with deviation to the left, ataxia, and Rhomberg falling to left. The otologists found nystagmus on lateral gaze to the right, perceptive impaired hearing, decreased vestibular response, a small rounded hemorrhagic elevated mass on the inferior aspect of the drum. The patient was anxious about her tendency to choke. The x-rays, posteroanterior and Towne views, showed a widening of the left

internal acoustic meatus. The diagnosis was: acoustic neuroma, benign, and the patient was referred to a Wichita neurosurgeon whose clinical diagnosis was: left posterior fossa tumor. The vascularity of this tumor was vividly described in a letter to us: "A craniotomy was performed and upon entering the left cerebellar hemisphere, the tumor was found to be bulging out of the left jugular foramen, and extending medially until it just barely touched the pons and medulla (the IX and X cranial nerves disappearing into the tumor), and measured the size of the distal joint on a man's thumb. It was expansile, almost as pulsating as an aneurysm. A needle was passed into the tumor at three places and blood could be aspirated from the needle. Upon withdrawing the needle from each of these areas, blood pulsed from the needle hole for a short time before stopping spontaneously." When the rather tough capsule at the lateral end of the tumor was incised to get a biopsy, "A continuous column of blood poured from the incision and it was necessary to place a piece of muscle into the opening with pressure before bleeding was stopped." It was felt unwise to continue surgery and the muscle patch was sutured into the capsule opening and gelfoam pack placed. The pathologist's diagnosis was hemangioblastoma of the cerebellopontine angle.

The pathologist's description was: "Sections taken from the submitted tumor showed numerous small vascular spaces which were lined by a layer of rather plump endothelial cells. The vascular spaces contained large numbers of intact red blood cells. Between the small vascular channels there was proliferation of the previously described rather plump endothelial cells which also lined the vascular channels. There were zones of degeneration in which there was deposition of small masses of granular eosinophilic material. Within these zones there were a few fairly large cells which had a foamy pale cytoplasm." (This tumor was later classified as a glomus jugulare tumor.) In the hope of destroying some of the vascularity involved, the patient was given roentgen therapy of 4380 r over a period of five weeks with port size 6 × 8, and 80 r dose daily to each of the left occiput, right vertex, and vertex areas. The patient did fairly well. Fourteen years later, on October 4, 1965, it was my privilege to see this patient. There was no hearing on the left per audiogram, the left ear drum appearance is identical to the color photo in Alford's and Guilford's paper except that our patient's superior portion of the drum is less reddened. The neurologic findings were the same as in 1951 except for some decreased sensation of the left side of the face. She had a temporary facial paralysis postoperatively. A comparatively recent car accident has made it difficult for her to walk. Her chief difficulty is that of

eating and swallowing since she chokes so easily. Her voice is quite hoarse. X-rays show defects in the petrous bones bilaterally, most marked on the tip of the left; however, no right-sided symptoms or signs are present.

CASE 2

M. S., a white woman aged 70, came to our clinic March 4, 1955, after having consulted other doctors because of choking, trouble swallowing and hoarseness of one year's duration. Buzzing in her left ear began ten years prior, and hearing loss six years prior, becoming progressively worse. She was on medication for grand mal epilepsy which began in 1944. Neurologic examination showed essentially the same findings as for Case 1. There was much pooling of the saliva in the pyriform fossa. The ear on examination showed a firm, nontender, broad-based, nonbleeding, red, mulberry-like nodular mass apparently coming from the posterior superior wall of the ear behind the drum. No bruit was heard. Direct laryngoscopy and esophagoscopy were normal except for the left recurrent laryngeal nerve paralysis.

The x-rays, posteroanterior, Towne and basilar views showed a lytic area of the petrous bone in the jugular foramen region, best demonstrated on the basilar view (*Figures 1, 2, 3*). By that time I had read Gibson's and Proud's article so the clinical diagnosis was glomus jugulare tumor, which

was verified by the pathologist's examination of the biopsy tissue taken from the middle ear. This procedure was accompanied by brisk bleeding and required packing of the ear canal. The report was: "The tumor was covered with a thin layer of well differentiated squamous epithelium. Tumor cells were oval, the cytoplasm was indistinct. The nuclei were round or short oval, very dark stained and without distinct nucleoli. The tumor cells were arranged in nests which were surrounded with fibers which stained black with silver stain. No nerve fibers were seen. There was an abundance of thin-walled blood vessels and vascular spaces which had hypertrophic endothelium. There was no variation in the size of the nuclei of the tumor cells and no mitotic figures were seen."

Because of a nodule mass in the left neck, and in order to rule out a simultaneous nonchromaffin paraganglioma as described by Kipkie, an exploration was made for a left carotid body tumor. This proved to be an arteriosclerotic superior thyroid artery and a small aneurysm of the bifurcation of the left common carotid artery. Radiation therapy from March 21, 1955, to April 7, 1955, was 3354 r tumor dose at 4 cm. below the skin, and from May 14 to 19, 1955, 1677 estimated r tumor dose was given at 4 cm.

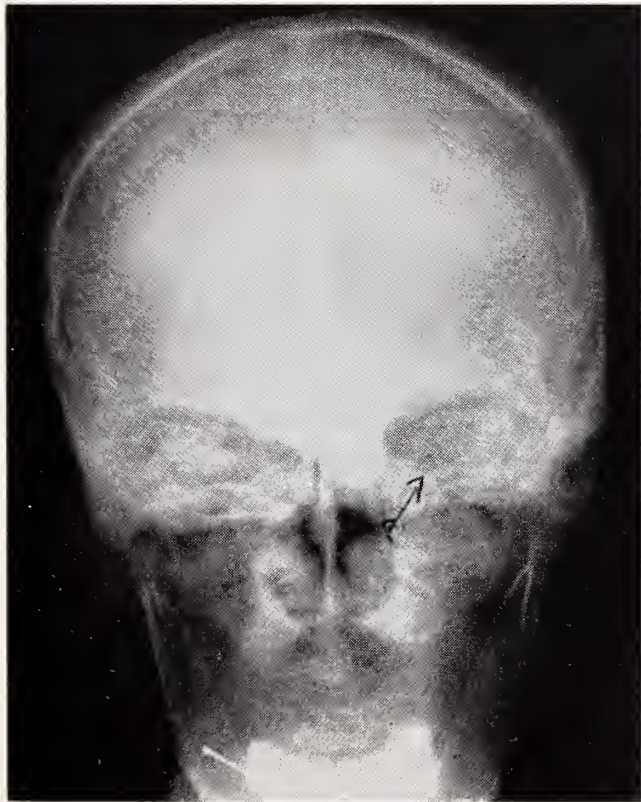


Figure 1. Case 2. Posteroanterior view showing widening of the internal auditory meatus.



Figure 2. Case 2. Towne view showing defect of the inferior portion of the petrous bone, region of the jugular foramen.



Figure 3. Case 2. Basilar view. Defect better visualized. (Print of film inadvertently reversed.)

below skin. Combined dosage to the overlapped treatment area at 4 cm. was 5031 r.

After therapy, the middle ear tumor seemed to become less vascular. On August 1, 1958, the patient died of acute coronary occlusion. I was privileged to see the autopsy which showed the tumor in three half-spherical masses $2 \times 1.5 \times 1.5$ cm. protruding through

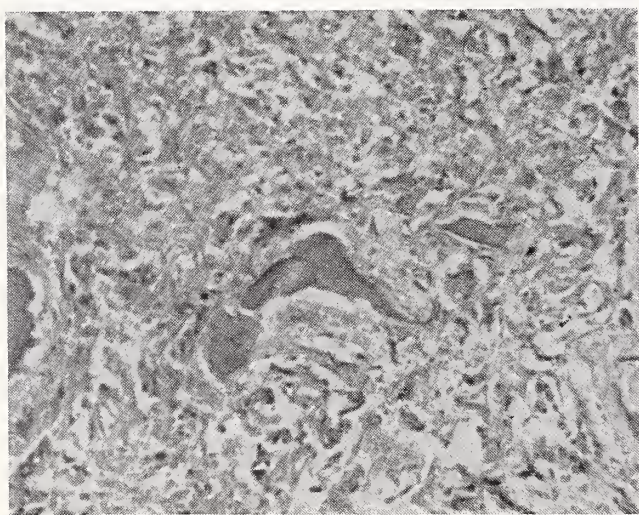


Figure 4. Case 2. Photomicrograph of autopsy section. Glomus jugulare tumor which invaded the petrous bone.

the jugular foramen into the cranial cavity encroaching on VII through XII cranial nerves and extending into the middle ear and growing into the petrous bone.

The microscopic sections showed the tumor to be much more compact and cellular than the biopsy specimen in 1955. Large, oxyphilic abundant cytoplasm, polygonal shaped cells were found; the nuclei were oval and varied in size. No mitotic figures but large nests of cells and abundant blood vessels were present. The petrous bone section (Figure 4) showed invasion of the bone marrow with tumor cells in nests with fibrous tissue. This is very similar to the section of specimen in Case 17 demonstrating the actual invasion and destruction of bone by a chemodectoma, as presented by Rice and Holman. Physicians desiring to examine our pathologic slide may so request. A Weil's stain did not reveal chromaffin granules.

CASE 3

B. F., a white woman, aged 71, was referred by her home physician. She was having difficulty swallowing, hoarseness, and paralysis of the left side of her face. To her, those symptoms seemed to come on rather suddenly while eating ice cream three years previously; she thought she had had a stroke. Detailed questioning brought out that about six years prior she had the feeling that the left side of her tongue did not "work right," she had veering to the left, a buzzing in the head, and a hearing loss that was gradually getting worse. The x-rays, anteroposterior and Towne views, showed a severe destructive process involving the left mastoid and the left petrous bone (Figures 5 and 6). Again the neurological findings were similar to those of Cases 1 and 2, but she also had a complete facial paralysis. A dark red nodular mass pushed the ear drum laterally into the ear canal and there were no visible landmarks of the drum.

A myringotomy and biopsy of the middle ear tumor were accompanied by profuse bleeding, and the clinical diagnosis of glomus jugulare tumor (non-chromaffin paraganglioma) was confirmed by the pathologist's report: "There was prominent vascular network lined by flattened endothelial cells and containing red blood cells. These vascular structures were surrounded by nodular aggregates of epithelioid cells which were rather uniform and in areas separated by fibrous tissue stroma." Silver stains were used to demonstrate the reticulum (Figures 7, 8 and 9). The patient was referred to radiologists in Wichita who on April 10, 1965, reported that "A tumor dose of 5600 roentgens was delivered with cobalt teletherapy in 28 treatment days. Oblique ports and lead wedge filters were used to accomplish this." The pa-



Figure 5. Case 3. Posteroanterior view showing destruction of the petrous tip.



Figure 6. Case 3. Towne view showing marked destruction of the tip of the petrous bone.

tient was seen September 20, 1965, and has done well. She stated she has to eat slowly and about six times a day. The tumor of the middle ear appears to be less vascular and does not extend as far into the canal, and while the palsy of all the cranial nerves remains, she has greater use of her left arm in swinging it backward.

Summary

Three white female patients, past middle age, are presented. Each had left hearing loss and pulsating tinnitus (but no aural discharge) of six to ten years prior to being seen for severe neurologic symptoms and signs: namely, great difficulty in swallowing, choking, hoarseness, deviated and left atrophy of

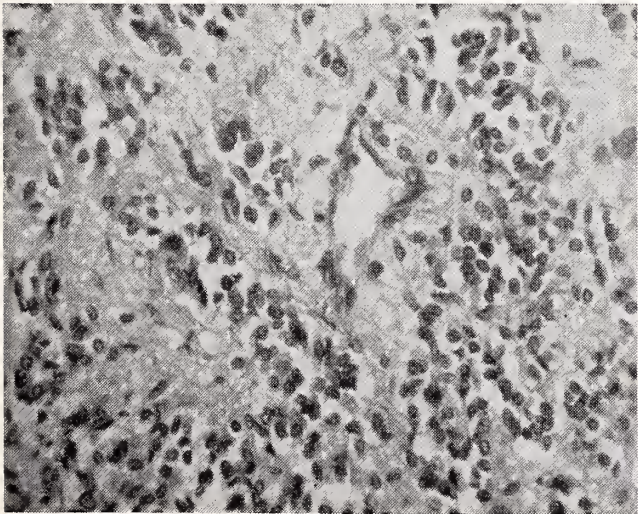


Figure 7. Case 3. Prominent vascular network lined with flattened endothelial cells separating nodular aggregates of rather uniform epithelioid cells. H. & E. High power magnification.

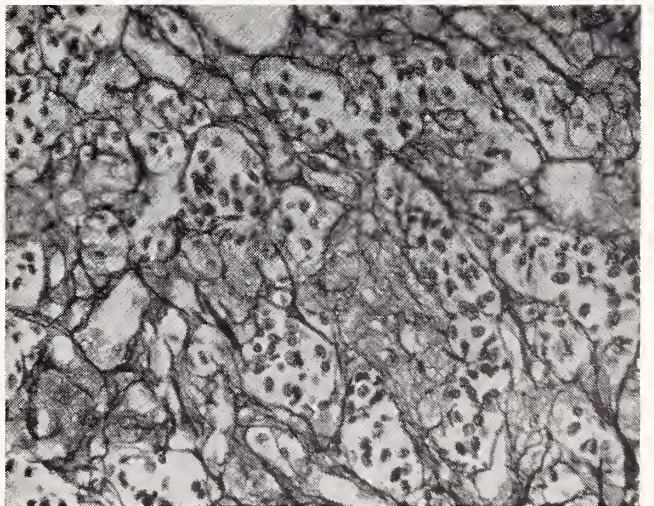


Figure 8. Case 3. Photomicrograph showing prominent reticulum strands surrounding masses of tumor cells rather than individual cells. Silver stain. High power magnification.

TABLE 1

	Case 1	Case 2	Case 3
Date when first seen	10-9-51	3-4-55	2-9-65
Age when first seen	61	70	71
Age when symptoms began	51 to 53	60	65
Sex	F	F	F
Race (Caucasian)	×	×	×
Chief complaint was neurological: trouble swallowing, choking and hoarseness	×	×	×
Initial symptoms were otic: buzzing tinnitus, hearing loss	×	×	×
Side involved	L	L	L
Presence of visible tumor in ear on examination	×	×	×
Audiogram type loss	Neurosensory	Combined	Complete
X-ray findings of temporal bone involvement	×	×	×
Neurologic examination: cranial nerves involved	Rhomberg to left, VIII-XII	VIII-XII	VII-XII
Preoper. clin. diagnosis of glomus jugulare tumor	Left posterior fossa tumor	×	×
Surgery or biopsy (with profuse bleeding)	Craniotomy and tumor biopsy	Through tymp. membrane	Myringotomy and biopsy
Biopsy diag. of glomus jugulare tumor	Hemangioblastoma later: git	×	×
Treatment, x-ray therapy	×	×	×
Followup	10-4-65 same as 14 years prior.	8-1-55. Died, coronary occl. PM: tumor of ear thru jugular foramen, eroding petrous bone.	9-20-65 Feels improved.

tongue, atrophy of left sternocleidomastoid and trapezius muscles, and loss of the sense of taste and the gag reflex on the left. In one patient there was complete left facial paralysis. Diagnostic radiographs showed petrous bone involvement in all three. The first patient had a craniotomy and biopsy; the other two had middle ear tissue biopsies which showed vascular tissue with nests of epithelioid cells. All

three were treated with radiation. Autopsy microscopic sections of the second patient's tumor showed definite invasion and destruction of the petrous bone.

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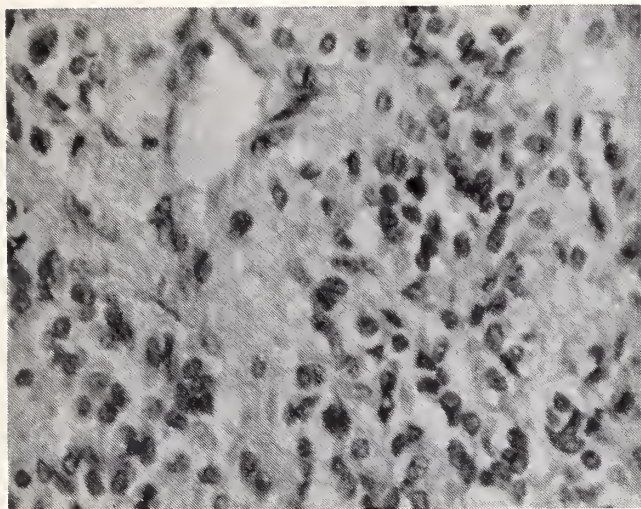


Figure 9. Case 3. Photomicrograph, higher power of Figure 7.

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Molecular Pathology

Newer Concepts of Molecular Pathology in Dysproteinemias

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IT IS WELL ESTABLISHED that malignant or excessive proliferation of plasma cells is associated with serum protein changes detected by electrophoresis. These abnormalities of electrophoretic patterns have given use to terms such as "hypergammaglobulinemia," "M-peaks," "myeloma peaks," or "gamma globulin peaks." It is now recognized that the term "gamma globulin" no longer is a precise enough term for the protein molecules migrating electrophoretically in the γ and β_2 globulin areas. Heremans has introduced the term immunoglobulins to specify a group of proteins migrating in this area since they carry antibody activity. The three classes of proteins in this electrophoretic area were originally defined as γ (7S), β_2A (7S) and β_2M (19S)^{5, 7} but now are designated γG , γA , and γM by international agreement.^{3, 11} A fourth immunoglobulin just recently described is γD .⁹

This immunoglobulin concept has been fully developed through use of immunochemical methods particularly immunoelectrophoresis.^{2, 6, 10, 12} Briefly, immunoelectrophoresis consists of two phases; electrophoresis followed by immunodiffusion. Serum is separated by agar electrophoresis and then by immunodiffusion antihuman serum antisera is reacted with the serum proteins. Each immunoglobulin has a specific precipitin arc which forms in the agar during this immunodiffusion stage.⁴ (Figure 1, lower right) Williams and Grabar; Terry and Fahey, and Cawley *et al*² have summarized procedures for immunoelectrophoretic analysis. It is the purpose of this paper to demonstrate the roll of immunoelectrophoresis in the clinical laboratory in categorizing various diseases involving proliferation of plasma cells and lymphocytes, and to briefly summarize the relationship of these findings to recent information pertaining to the molecular structure of immunoglobulins.^{5, 7}

Material and Methods

In our institution most medical admissions have

a routine total serum protein performed either by refractometry or by chemical methods. Electrophoresis by agar gel is performed according to the method of Cawley *et al*.¹ The method is rapid and a test is completed in about two hours. Abnormal patterns are prominent and are quickly identified. Figure 1 shows scan and electrophoretogram of normal (upper

An attempt has been made to review the recent biochemical information concerning the chemical structure of the immunoglobulin. There are now four recognized immunoglobulins with international agreement of nomenclature with the following designation: γG , γA , γD and γM . Each of these may be involved in malignant or abnormal proliferation of plasma cells and the first three listed may be associated with myeloma. Only γM is associated with primary macroglobulinemia of Waldenström. The others may be found in a variety of myelomas, most of which will have skeletal lesions and positive bone marrow findings. A number of individuals exist in which no clinical disturbance is found. These represent benign monoclonal gammopathies.

right) compared to abnormal (upper left). It is customary to review each electrophoretogram and to suggest immunoelectrophoresis when it becomes necessary to determine the serologic specificity of an abnormal protein. A normal immunoelectrophoretogram is shown in Figure 1 (lower right) compared to an abnormal immunoelectrophoretogram (lower left). These correspond to the electrophoretic patterns shown above. Within 24 to 36 hours after a serum sample has been obtained it is possible to establish the serologic classification of the immunoglobulin responsible for a peculiar disturbance in the electrophoretic pattern.

* From the Department of Pathology, Hertzler Clinic, Halstead, Kansas, and Wesley Medical Research Foundation, Wichita, Kansas. Supported in part by grant from the Kansas Division of the American Cancer Society.

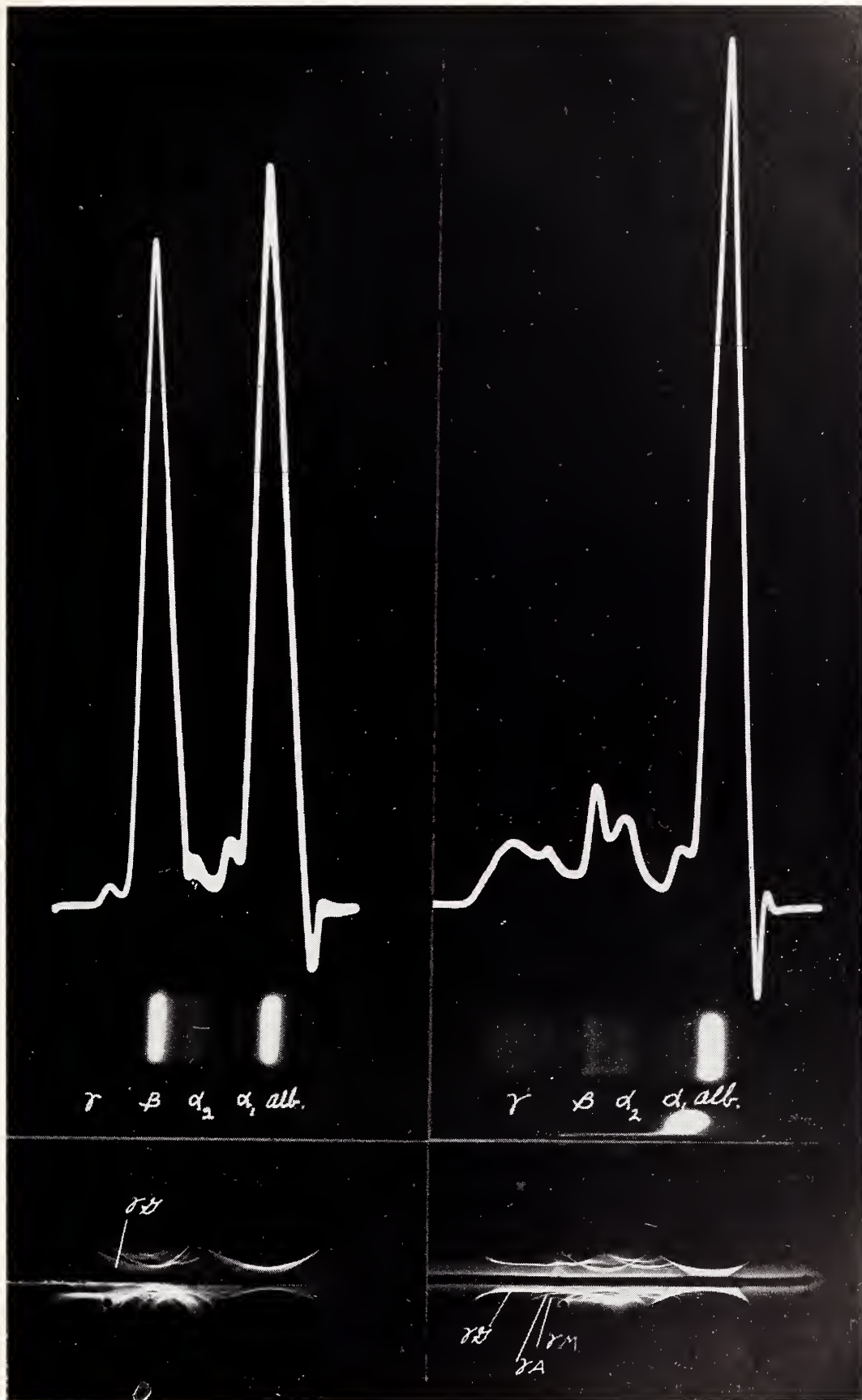


Figure 1. Scan and electrophoretogram of normal (upper right) and abnormal (upper left). Note the monoclonal peak in the γ and β globulin area of the abnormal electrophoretogram. The immunoelectrophoretograms for the normal serum (lower right) and of the abnormal serum (lower left) show the multitude of bands one can expect by immunoelectrophoresis. Only those marked are of importance for this discussion. Note the increase of γ G precipitin band which designates the monoclonal peak of the electrophoretic pattern (upper right) as a γ G immunoglobulin. In all instances the anode is on the right.

Discussion

The molecular structure of immunoglobulins consists of four polypeptide chains, two heavy chains (H) and two light chains (L).⁸ These molecules are manufactured by plasma cells and also lymphocytes. Each immunoglobulin is thought to be synthesized by a specific clone. (A clone may be defined as a group of cells arising from a single ancestral cell.) If there is excessive production of molecules by a clone or an increase in number of cells of a clone then there is an excess of a specific immunoglobulin which electrophoretically is seen as a narrow zone of dense staining protein usually in the β or γ zone (Figure 1, upper left). The narrow protein zone in the electrophoretogram is a reflection of the homogeneity of the protein, that is, all of the molecules are of essentially the same size. A tracing of the electrophoretogram shows a peak or spike to match the dense protein zone and has led to the usage of such terms as "church steeple spike," "M-spike or peak," and more recently "monoclonal peak." The term monoclonal peak is more in keeping with the true nature of protein synthesis, and the disease state is referred to as monoclonal gammopathy. Myelomas and macroglobulinemias are examples of monoclonal gammopathy. If more than one clone of cells participates, each making its respective immunoglobulin, then a polyclonal peak is seen in the γ -globulin zone of the electrophoretogram which is associated with polyclonal gammopathy. Such disturbances are rather frequently observed in autoimmune disorders such as cirrhosis, rheumatoid arthritis and lupus erythematosus. If clones of cells normally present are absent or in reduced numbers then a state of aclonal or dysclonal gammopathy results and no significant peaks are found in the electrophoretogram.

Examples of these changes are agammaglobulinemia (sex-linked) and acquired disturbances of the reticuloendothelial system such as lymphatic leukemia. The original structural formula of an immunoglobulin molecule as originally proposed by Porter delineated four peptide chains, two L chains and two H chains, bound together by disulfide bonds. Selective cleavage of these bonds followed by isolation and purification led to several interesting conclusions. L chains are the common structural subunits of all immunoglobulins, usually exist as dimers with a combined molecular weight of 50,000 (Table 1), have no carbohydrate content in the molecule, are related or synonymous with Bence Jones protein, and exist in two immunologic forms, kappa (κ) and lambda (λ). H chains are the specific structural subunits of the immunoglobulin molecule, each have a molecular weight of 50,000, contain carbohydrate, bear no relationship to Bence Jones protein and demonstrate immunologic specificity of the immunoglobulins.

Clarification of these formulae by acceptable nomenclature as shown in Table 1 has resulted in a better understanding of the diseases which arise from abnormal synthesis of protein. Under usual circumstances a clone manufactures 60 per cent λ chains and 40 per cent κ chains. In the case of a malignant clone all of the L chains of the immunoglobulin produced is either κ or λ type. There is no mixture in the malignant state. This is consistent with the basic concept of the biology of tumors, *e.g.* tumors arise from single cells and thus represent a clone. As can be seen in Table 1 it will be noted that for the macroglobulins (γ M) the unit formula $\mu_2\kappa_2$ or $\mu_2\lambda_2$ is polymerized into five units. This gives a total molecular weight of roughly 800,000 which is the approximate molecular weight of these macroglobulins.

Several disease states of plasma cells can be pre-

TABLE 1
PROPERTIES AND MOLECULAR STRUCTURE OF THE IMMUNOGLOBULINS

Properties	γA	γG	γM	γD
Molecular weight	150,000	150,000	800,000	—
Carbohydrate content per cent	10.5	2.5	12.0	—
Ultracentrifuge	7S (9,11,13S)	7S	19S (24S,32S)	7S
Molecular structure (2 heavy chains + 2 light chains)				
H chain (M.W.—50,000)	alpha (α)	gamma (γ)	Mu (μ)	delta (δ)
L chain (M.W.—25,000)	lambda (λ)	λ	λ	λ
(Two serologic types)	kappa (κ)	κ	κ	κ
Complete formulae	$\alpha_2 \lambda_2$ $\alpha_2 \kappa_2$	$\gamma_2 \lambda_2$ $\gamma_2 \kappa_2$	$(\mu_2 \lambda_2)_5$ $(\mu_2 \kappa_2)_5$	$\delta_2 \lambda_2$ $\delta_2 \kappa_2$

cisely classified immunologically. In many instances the neoplastic cells of myeloma manufacture a complete molecule of both H and L chains, however, in some instances there is an excess production of L chains and these, being small, appear in the urine. These L chains may or may not exhibit the thermal properties of Bence Jones proteins. It is important at this time to recognize that finding a monoclonal peak in an electrophoretogram is insufficient to establish a specific diagnosis of myeloma or macroglobulinemia. A definitive diagnosis can only be established with the use of immunoelectrophoretic analysis employing specific antisera, bone marrow examination and clinical evidence of disease. By immunoelectrophoresis of serum and urine with specific antisera it is possible to define all known gammopathies of myeloma type and also macroglobulinemia of Waldenström. In *Table 2* are listed the findings necessary to establish a definitive diagnosis of malignant dysproteinemia. *Table 2* includes electrophoretic analysis of serum protein and urine, Bence Jones determination in urine, skeletal lesions, bone marrow findings and the possible formula of the immunoglobulin involved. As can be seen, there are three types of myeloma, γ A, γ G and γ D, which may exist with or without Bence Jones proteinemia. H chain disease which has been recently described⁵ was pre-

dicted on theoretical basis. In this disorder the clone manufacture excess H or exclusive H molecules. The molecule is small enough to appear in the urine but the plasma is not cleared so that electrophoretically a monoclonal peak appears in the serum and also the urine. Since the H chain molecule contains a specific marker of the immunoglobulins a specific antisera against one of the immunoglobulins was used in the early attempts to define this peculiar protein in the urine. Thus far only γ , the H chain of γ G, has been found. It does not have thermal properties. Patients with H chain disease have lymphosarcoma but do not have skeletal lesions.

It should be recognized in reviewing *Table 2* that by having electrophoretic analysis of urine and serum, Bence Jones protein determination of urine, skeletal survey and bone marrow findings a definitive diagnosis can be made. It must be stressed that electrophoretic and immunoelectrophoretic analysis alone are insufficient to establish the diagnosis of a malignant dysproteinemia. There exists approximately 10 to 20 per cent of monoclonal gammopathies where no clinical malignant syndrome can be identified. Therapy may shortly become tailor-made to the type of molecular abnormality of protein synthesis thus it is important to begin to identify the specific molecular abnormalities of dysproteinemia.

TABLE 2
ABNORMAL IMMUNOGLOBULIN SYNTHESIS AND ASSOCIATED CLINICAL
AND LABORATORY FINDINGS

<i>Monoclonal Peak</i> SERUM	URINE	<i>Bence Jones</i>	<i>Skeletal Lesions</i>	<i>Bone Marrow</i>	<i>Molecular Structure</i>	<i>Diagnosis</i>
X	X	X	X	Positive	$\alpha_2\lambda_2$; $\alpha_2\kappa_2$ (γ A) $\gamma_2\lambda_2$; $\gamma_2\kappa_2$ (γ G) $\delta_2\lambda_2$; $\delta_2\kappa_2$ (γ D) L chains in urine	Multiple Myeloma γ A, γ G, or γ D type
X	O	O	X	Positive	as above without L chains	
X	X	O	O	Lymph nodes Lymphosarcoma	γ -H chains	H chain disease
X	O	O	O	Positive	$\mu_2\lambda_2$ or $\mu_2\kappa_2$ (γ M)	Macroglobulinemia
O	X	X	X	Positive	λ or κ L chains	B. J. Myeloma
O	X	X	O	Negative	λ or κ L chains	Amyloid
X	O	O	O	Negative	$\alpha_2\lambda_2$; $\alpha_2\kappa_2$ (γ A) $\gamma_2\lambda_2$; $\gamma_2\kappa_2$ (γ G)	Monoclonal Gammopathy of Unknown Etiology

Summary

An attempt has been made to review the recent biochemical information concerning the chemical structure of the immunoglobulin. There are now four recognized immunoglobulins with international agreement on nomenclature with the following designation: γ G, γ A, γ D and γ M. Each of these may be involved in malignant or abnormal proliferation of plasma cells and the first three listed may be associated with myeloma. Only γ M is associated with primary macroglobulinemia of Waldenström. The others may be found in a variety of myelomas, most of which will have skeletal lesions and positive bone marrow findings. A number of individuals exist in which no clinical disturbance is found. These represent benign monoclonal gammopathies.

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Massive Neurofibrosarcoma

(Continued from page 64)

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Lipoid Pneumonia

—a mimic of other conditions, it may be obscure and baffling

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LIPOID PNEUMONIA at times presents difficulties in establishing the proper diagnosis. It may mimic other diseases of the lung that are of more serious prognosis. It may present the problem of differentiating this condition from lung abscess or bronchogenic carcinoma. The present day use of oils in industry as sprays causes one to be ever on the alert, although we feel this risk is not great under proper precautions. The consensus is that this disease is found primarily in the debilitated or in those who have some defect in swallowing so that the oil is aspirated. However, more recent reports show it does occur in the healthy person. For the most part the condition we are considering is mineral oil pneumonia. This has been defined as "the inflammatory, granulomatous, and fibrotic reaction of the lung to the aspiration of mineral oil."⁶

It is known that various oils, depending upon their composition, cause reactions in various ways. Poppy seed oil and various vegetable oils of like type cause little reaction^{5, 7} as is known from use of these in bronchography. Animal oils cause necrotizing reactions. Mineral oil, while non-irritating in that it fails to initiate the cough reflex or stimulate reflex closure of the glottis, does produce a foreign body reaction.⁹

Since there may be no clinical symptoms, signs or characteristics, the finding of lipoid pneumonia may be an incidental finding at the autopsy table.² Symptoms, or lack of them, may vary from none to an acute abscess. X-ray findings do not have a definite pattern. The oil tends to locate in the dependent portion of the lungs.¹⁰ It may be diffuse, affecting many lobes, or may be a localized area suggesting abscess or bronchogenic tumor.

Cardiospasm has been implicated in approximately 138 cases of aspiration pneumonia. Of these, six cases were lipoid pneumonias.^{1, 8} Recently we observed a patient who regurgitated with aspiration following subtotal gastric resection. Following these spells he would have chills and fever.

It has been shown that examination of the sputum quite accurately confirms the diagnosis of lipoid

pneumonia. However, when atypical cells are found in the sputum^{4, 11} one can hardly disregard the possibility of the patient having cancer.³

The following cases illustrate some of the problems encountered in these patients:

Case Reports

CASE 1. White, male, 4 years old. He had a history of fever up to 103° F. for the past seven weeks. At

Five cases of lipoid pneumonia are reported. Differential diagnostic features are presented. Histological tissue diagnosis by pulmonary biopsy is recommended when doubt exists and good evidence of pulmonary malignancy still exists.

first he was treated for tonsillitis with no help. He had vomited five weeks previously. The mother recently noted rattling in the patient's chest. A wheeze was heard by the mother the first day he was seen at the clinic. The physical examination, except for some cervical nodes, was essentially normal. The chest x-ray revealed: a mottled infiltration in the region of the lingular segment of the left upper lobe. Borders were irregular. There was no change after one month of observation.

The urinalysis was normal. Hemoglobin 12 Gm.; Hematocrit 35 per cent; white blood count 12,550 with differential of eosinophiles 3, stabs 17, segmented 65; lymphocytes 15 and sedimentation rate of 55. After bronchoscopy, which revealed only slight hyperemia of the left mainstem bronchus, and aspiration revealing many ciliated cells of typical appearance, a diagnosis of bronchogenic abscess was made. The patient was dismissed on tetracycline and told to return in two weeks.

The patient returned in two weeks with no change in symptoms or x-ray findings. A thoracotomy was performed and resection of the lingula of the left lobe done. The pathologist reported lipoid pneumonitis. No history of the use of oil or oily substances was elicited.

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CASE 2. A white male, 57 years old, was seen because of soreness of the right chest with fever to 103° F. of a week's duration. Chest x-rays showed what was interpreted to be a right upper lobe pneumonitis. On streptomycin and penicillin the area showed 50 per cent resolution. The temperature was normal during the entire period. The white blood count was 6,550 with a differential of 1 basophil, 1 eosinophil, 6 stabs, 56 segments, 30 lymphocytes and 6 monocytes. The sedimentation rate was 85.

Bronchoscopy was done on the eighth hospital day and aspirations were positive for atypical cells with arrangement of squamous cells. Sputums were negative for atypical cells. Although the bronchoscopist felt there was a good chance for tumor, the patient elected to be followed.

The patient returned two weeks later, at which time the chest x-ray showed further clearing. The leukocyte count was now 7,450 with a differential of 1 basophil, 4 eosinophils, 58 segments, 30 lymphocytes and 7 monocytes. The sedimentation rate was now 27.

Again the patient elected to wait and was seen about three weeks later. At this time again bronchial aspirations showed atypical cells and an exploratory thoracotomy was done. A wedge section of posterior basic segment of the right upper lobe was done. Frozen section revealed lipoid pneumonia. On followups, x-rays have shown: residual fibrosis but no evidence of active disease.

No history of mineral oil ingestion or the use of oily substances could be obtained.

CASE 3. A white, 50-year-old farmer was admitted because of cough and weight loss of five weeks' duration. The patient had been x-rayed and told he had either tuberculosis or cancer. The sputum was said to be negative and he was treated first with penicillin and later streptomycin. Further questioning revealed that the patient had been treated previously for cardiospasm and had been dilated.

Physical examination revealed dullness to percussion over the right base posteriorly with coarse rales over this area. The patient was bronchoscoped; aspirations, as well as sputum, were negative for atypical cells. Both the bronchoscopy and esophagoscopy were reported normal. Hemoglobin was 12 Gm. with the hematocrit 39 per cent, and white blood count of 10,600 and a differential of 1 basophil, 6 eosinophils, 1 juvenile, 6 stabs, 45 segments, 34 lymphocytes, 6 monocytes and 1 abnormal. The sedimentation rate was 3 mm. X-ray of the chest revealed: diffuse mottled infiltrations involving all three lobes on the right. No hilar adenopathy.

It was decided that a thoracotomy for biopsy

should be done. Frozen section of the tissue revealed lipoid pneumonia.

Although the patient denied the use of medicine, it was learned that he habitually took large amounts of mineral oil to regulate his bowels.

CASE 4. A 58-year-old white male was first seen complaining of gas and constipation of three years' duration. During the preceding three months he had had alternating constipation and diarrhea every four to five days. During this time he had lost ten pounds. He had had a subtotal gastric resection for duodenal ulcer in 1948.

Routine chest x-ray revealed an infiltration of the upper left lung field with possible cavitation. Sputums were negative for both acid-fast organisms and atypical cells. Skin tests were negative except for an equivocal reaction to second strength tuberculin. For this reason it was decided a thoracotomy for biopsy should be done. Sections revealed lipoid pneumonia.

Further questioning of the patient failed to elicit any history of use of oils by mouth. His history did reveal use of an oily substance in his work. It is hard to conceive that this could be aspirated only into the right upper lobe.

CASE 5. A white diabetic man, 68 years of age, was admitted to the hospital with a history of repeated colds of seven months' duration following a bout of bilateral pneumonia. He had difficulty in breathing the past few days, with some pain in the left chest. He had had pneumonia following surgery in 1959.

At the time of admission his hemoglobin was 15.4 Gm., hematocrit 49 per cent, white blood count 19,000, 35 stabs, 75 segments, 4 lymphocytes, and 8 monocytes. The sedimentation rate was 47 mm. A week later the white blood count was 13,700, 1 eosinophil, 1 stab, 91 segments, 3 lymphocytes and 4 monocytes.

Chest x-ray showed diffuse infiltration at both bases. Suggestive evidence of atelectases and retraction.

The patient continued on a downhill course, became quite cyanotic, even with oxygen and high doses of antibiotics, and expired on the twelfth day of hospitalization. At autopsy the basic pulmonary disease was reported to be lipoid pneumonia. Further questioning of the family revealed that the patient used mineral oil to regulate his bowel habits.

Discussion

Five cases of lipoid pneumonia are reported, ranging from ages four to 68. The four-year-old showed evidence suggesting a lung abscess. The other patients were considered to have bronchogenic carcinoma

(Continued on page 85)

Intensive Milieu Therapy

A Plan of Attack Upon All Forms of Mental and Emotional Illness

J. E. C. MORTON, M.D., *Halstead**

WE CALL THE TREATMENT program we use in the Department of Psychiatry the *Intensive Milieu* because our endeavor has been to develop a plan of attack upon all forms of mental and emotional illness which is flexible enough to be individualized for each patient yet intensive enough to shorten materially the length of each patient's stay in hospital. Now that the plan has been successfully in operation for several years we feel we have found something which combines in one setting most of the modalities known to be effective as therapy for emotional illness. It succeeds, we feel, in subjecting each patient to an ongoing pressure of therapy which results in almost every case in a rapid return to their premorbid state or better, so that a minimum of outpatient follow-up suffices to keep them operating at home or in their employment. The term "milieu" as we use it means not only the physical setting in which treatment takes place but also the way in which the patient experiences personal interaction in a global therapeutic fashion with others in a similar state of illness. Not only is he a member of the larger group made up of all those in the hospital at the same time, but also of at least one active therapy group which meets every day, plus the other groups that take part in daily occupational therapy, recreational therapy and the various social activities that are also available. He may, if his needs are appropriate, also be a member of the psychodrama group in addition to all the others.

Such a program of intensified therapeutic pressure, however, can be very stressful to a patient and must be carefully used if it is to succeed in its aim of shortening illness and hastening recovery. Indeed, it could easily produce the reverse effect. This can be avoided only if those operating it thoroughly understand each patient's needs as being individual and unique and combine their efforts in a unified drive to meet them. This is achieved, in our case, by daily communication between the individual members of the two psychiatric treatment teams of psychiatrist, psychologist, and social worker. These teams meet to-

gether daily in staff conference and regularly take part in the daily ward rounds, so that patients are constantly under scrutiny as to their problems, their progress and their needs. For this to be truly effective

A brief report on the nature and effectiveness of the intensive milieu therapy program of the Department of Psychiatry is submitted. Its use of multiple integrated therapeutic modalities is explained and statistical evidence of its wide applicability is added.

it is essential that sufficient information on each patient is collected as soon as possible after admission through psychiatric interview, psychological evaluation and the social history. This is then studied in staff conference and an individual treatment program drawn up for each patient. This program will include medication as indicated, assignment to daily group therapy, specified kinds of occupational therapy and other adjunctive therapy, plus, in selected cases, assignment to psychodrama.

The Inaccessible Patient

It may not seem at first glance that there is anything very unusual or intensive about such a program yet we are continually surprised at how effective it proves to be in practice. It has remained the hard core upon which we base our efforts. We feel it is the way in which we use it that accounts for this rather than the mere methods themselves. Severely disturbed, psychotic patients respond to it as well and as quickly as the neurotic or mildly disturbed ones. So also do many chronic brain syndromes, alcoholics, personality disorders and other notoriously difficult cases. Even some types of character disorders will, if properly motivated, respond surprisingly well. Important factors are the atmosphere of confidence among the staff, their interest in and respect for the patient, and the comradeship of his fellows that the patient experiences in the groups.

* From the Department of Psychiatry, the Hertzler Clinic, the Hertzler Research Foundation and the Halstead Hospital.

Patients who are admitted in inaccessible states of excitement or depression cannot become a part of this closely coordinated therapeutic community right away. They have to be brought back into some degree of contact by means of appropriate chemotherapy or electro convulsive therapy. When either of these methods are used, however, it is only to the minimum extent needful to obtain this result. The writer is strongly of the opinion that neither of these should be used as more than a means to open the door for psychotherapy to reach the patient. To think of these methods as being, of themselves, complete or effective treatments is to fail to realize the true nature of the condition under treatment, and to ignore the patient's ability to recover through the use of his inner resources under the guidance and direction of the psychotherapist. Therefore very heavy doses of psychotropic drugs are never used and electric treatments seldom exceed six per patient and frequently less. Insulin shock therapy is not used at all, though small doses are occasionally given for nutritional purposes.

Peripheral Therapies

Exposing our patients in the hospital to what amounts to a crossfire of therapeutic modalities, each carefully aimed at one or more aspects of the patient's disturbance, does not complete their treatment. Realizing that all such people are products of a sick environment which has been assessed during the evaluation process, at the appropriate time members of the family are drawn into the treatment by marriage counselling or family therapy. In this way we ensure that when the patient leaves the hospital he will have as good a chance as we can give him of staying well and not relapsing under the same inimical condition that brought him to the hospital. This will continue after his dismissal from the hospital for as long as his needs demand it.

Individual Therapy

Individual therapy is also available but, feeling as we do, that the group methods we employ are both more effective and more rapid for the type of patients that come to us it is comparatively little used.

Number of Patients Treated

Statistics were last compiled in the year 1963. Those for 1964 will be available shortly. There has been no significant change, except that the number of patients treated has risen by about ten per cent. The length of stay and the diagnostic categories are basically unaltered.

DEPARTMENTAL STATISTICS FOR CALENDAR YEAR 1963

Total new admissions	215
Total "readmissions"*	162
Grand total	377
Average stay per patient	22 days

* "Readmissions" include new patients of the department previously admitted to medical or surgical wards. Record keeping methods do not separate these from those who are true readmissions for relapse of emotional illness. True readmissions cannot therefore be accurately reported here.

DIAGNOSTIC BREAKDOWN

Psychoneurosis (all types)	159
Affective disorders	11
Schizophrenia (all types)	104
Other psychoses	26
Chronic brain syndrome	22
Acute brain syndrome	6
Psychophysiological disorders	3
Personality disorders	44
Mental deficiency	1
Diagnosis deferred	1

377

KANSAS ORAL CANCER DETECTION PROGRAM

A state-wide Oral Exfoliative Cytology Program has been designed and will be initiated through the Division of Dental Hygiene, Medical Health Services, Kansas State Department of Health, in early 1966. The purpose of the program is to stimulate interest in the early detection of unsuspected oral neoplasms and thereby reduce the number of deaths due to oral cancer.

All registered practicing dentists and physicians in Kansas are being invited to participate in the program. The Kansas dentists and physicians will receive through the mail a letter and a brochure explaining the details of the program.

Electrosleep Therapy

Some Results With the Use of Electrically Induced Sleep in the Treatment of Psychiatric Patients

ROY C. LONG, Ph.D., *Halstead**

THIS IS A BRIEF report of results obtained through use of electrosleep as induced by the Somniatron, Model 7200, an apparatus manufactured by the Lafayette Instrument Company of Indiana.

An excellent review of the literature on electrosleep has been prepared by Forster, Post and Benton;⁵ Clark and Webb also have compiled a historical account of the development of the procedure. No attempt will be made to expound on these works in the present paper. Reference is made only to those investigations pertinent to the plan followed in our study.

Sample Population

No control groups have been used as yet, nor has isolation of electrosleep been made from other therapeutic endeavors. Instead, 32 neuropsychiatric patients were selected as test treatment cases. These persons carried various diagnostic labels, but were all distinguished as having chronic insomnia. Severe mental disturbance involving anxiety, depression, and frequently conversion headaches and neuromuscular tension was typical. Each patient had failed to respond satisfactorily to other treatment approaches such as medications, physiotherapy, psychotherapy, et cetera, so the somniatron sessions were added. The exploratory search for something that might "work" to help these psychiatric patients was the primary rationale to which we adhered. Severe psychotics were included but chronic obsessives, persons with glaucoma or gross cardiac insufficiency were not considered good candidates. Neither EST nor insulin shock was given concomitantly. A breakdown of the population diagnoses is given in *Table 1*.

Procedure

The plan of investigation was to determine initially the performance of the available apparatus in producing sleep under the conditions reported in the literature. Adjustments in procedure came from dissatisfaction with first efforts. A routine was developed which kept the patient in bed in a quiet room. Activ-

ity in the room was minimal after the headgear was in place.

Technical procedures with the instrument have varied somewhat but typically utilize a constant pulse per second rate of 11 to 12, thus driving the alpha rhythm. After about three 50-minute treatment sessions spaced 24 hours apart, the second stage beta-

This exploratory study of the contribution made by electrically induced sleep in the treatment of psychiatric patients has confirmed that alleviation of neural cell fatigue, caused or greatly increased by insomnia, is attainable with the Somniatron apparatus. Removal of symptoms, whether sleeplessness or neuromuscular psychophysiological discomforts, can be accomplished with proper selection of patients for the sleep treatment. In addition, a catalytic effect is obtained with other therapeutic procedures, as individual or group therapy, because emotionally charged material can be better handled when the patient is rested after a good night's sleep. Use of habit-forming drugs or other sleep medications can be soon stopped. Beneficial effects therefore extend in a secondary way into other areas of improvement such as betterment of interpersonal relationships and increased productivity (disposition of energies) as well as raised thresholds of withstanding the stresses and conflicts of every-day living.

fast activity spikes are stimulated associationally even though the pps input rate is unchanged. Random delta wave activity, bringing on sleep during treatment, begins at about the third session. Even before the third session, the patient may experience improvement in nocturnal sleep, however, getting delayed effects of a "suggestive sleep" type 10 to 12

* From the Section on Clinical Psychology, Department of Psychiatry, the Hertzler Clinic and the Halstead Hospital.

TABLE 1
DIAGNOSTIC CATEGORIES

<i>Mental Disorders</i>	<i>Total</i>	<i>Per Cent</i>
Schizophrenic disorder	8	25
Involuntional disturbance	1	3
Personality disorder	3	9
Neurotic disorder	17	53
Chronic brain syndrome	3	9
	—	—
	32	100

hours after treatment. Square wave current used is in the micro ampere level, of course, and is gradually increased from a starting point of 55 to 60 micro amperes the first day to an optimal point where the patient is achieving sound sleep. This never exceeds 80 μ a and is usually a little lower. Daily treatments are given to a total of five per week. Another two to five may be given as needed the next week. This total of ten has been all that was required for every patient treated, except one: this classic chronic insomniac required 34! Improved nocturnal sleep benefits continue after cessation of treatment. No patient has ever had a relapse to severe insomnia. We have found it possible to carry one mental patient who required continuous supportive psychotherapy on a once-monthly treatment basis and have him enjoy appropriate night rest during the 30-day period. Obviously, psychologic and physical factors are operating in this procedure.

Evaluation of the effectiveness of electrosleep as we employed it was undertaken by a simple tabulation of sleep induction during treatment, noting how many sessions were needed, by the improvement in nocturnal rest patterns, by changes in pulse and respiration rates, and by other behavioral alterations.*

Whether noted during or following treatment, these "other" effects were broken down into the five criteria of improvement outlined by Knight for determining the therapeutic value of psychoanalysis. It was considered that the same difficult-to-pin-down quality about analytic help would apply to our observations regarding electrosleep. The five criteria used by Knight were:

1. Symptom recovery, relative freedom from or diminution of fears, inhibitions, dysfunctions, et cetera.
2. Increased productiveness, improved disposition of energies.

* Grateful acknowledgment is made of the assistance of Hilda E. Goering, E.E.G. technician and medical assistant in treatment of the patients and in compilation of the statistics.

3. Improved adjustment to and pleasure in sexual life.
4. Improved (less ambivalent, consistent and loyal) interpersonal relationships.
5. Achievement of sufficient insight to handle ordinary psychologic conflicts and reality stresses.

This was also the mode of evaluation employed by Clark and Webb, making it possible for us to replicate or refute their findings.

Results

The therapeutic success of our efforts with this instrument has been most satisfactory. Effects beyond that of sleep induction or nocturnal sleep improvement have been achieved in most patients. This is generally the sense of "well-being" associated with relief of chronic insomnia or body tension caused by emotional conflict. Other interesting secondary effects have been seen with individual patients. These include stimulation of catharsis during a "twilight" or fringe stage of somnolence wherein the patient will recall and verbalize long-past traumas or disturbing feelings. The similarity to analytic free associations or hypnotic relief of repressive control is striking. This has occurred with no instructions given to the patient other than to "work at relaxation." The potential uses of the somniatron apparatus are still being discovered in this way.

Success is not always achieved. One or two notable failures during an experimental period perhaps came from poorly selected candidates for treatment. While oral-dependency needs are readily satisfied through the sleep therapy, the decision must be reached as to whether such gratification will be beneficial in the patient's treatment plan. An exceedingly passive, or withdrawn, schizophrenic individual may not respond. In some other patients, we have found that though nocturnal sleep restoration and daytime relaxation have been gained, they require the usual measures of group or individual psychotherapy to deal with conflictual personality dynamics involved. Therefore, we employed Knight's criteria to cover any help a person obtained from all forces of our milieu treatment program.

Table 2 gives a tabulation of treatment effect as it resulted in sleep pattern alteration. All of our patients made some kind of beneficial response to the electrical stimulation. Attainment of sleep during treatment was not pursued directly, but emphasis was placed upon getting a good night's sleep afterward; the aim was to discontinue the use of drugs during the night hours as quickly as possible. The median number of sessions needed to reach restful night sleep was 3.5. Sixty-nine per cent reached a stage of somnolence while receiving the electrical current.

TABLE 2
TYPE OF RESPONSE TO TREATMENT

<i>State</i>	<i>No. of Cases</i>	<i>Per Cent</i>
A. No demonstrable change	0	0
B. Sleep during treatment	22	69
C. Stupor or "twilight stage" during treatment; relaxation afterward	10	31
D. Nocturnal sleep improvement due to treatment	32	100

The 22 patients who slept during treatment achieved somnolence after 1.5 (median) sessions. Another 31 per cent became stuporously drowsy but never completely lost consciousness. All 32 patients overcame nocturnal insomnia.

Throughout this study, the rationale for electro-sleep therapy was put on a two-factor physiologic basis. We acknowledged the cortical inhibition theory of Pavlov^{14, 15} but could not abandon the numerous investigations^{2, 3, 6, 9-13} which have pointed to inhibitory/facilitating sleep/waking centers in the reticulum and brain stem. The spread of protective neural inhibition over the entire cerebrum, constituting sleep phenomenon, is certainly understandable in Pavlovian terms. In this respect it is analogous to repression; the rigid monopoly of a patient's mind by generalized repressive defense is a phenomenon familiar to all clinicians. The length of an electro-sleep therapy session, and the low intensity current utilized, takes full advantage of Pavlov's two principles of paradoxical and ultraparadoxical neural processes. On the sleep-center side of the picture, the procedure of directing current from cathodes over the orbits to anodes placed on the mastoid processes and having the current cross enroute would strike the sleep/waking centers of the hypothalamus. This is analogous to the transverse incisions made by Nauta, as well as the observations by von Economo,² that inflammatory lesions of the mesial surfaces of the third ventricle caused *nona*, or sleeping sickness. Mauthner's early location of a sleep-regulating center has received so much elaboration through the follow-up work of Economo, Nauta, Hess and others, that the presence of at least some center for the control of sleep seems irrefutable.

We just could not adhere completely to either the cortical inhibition theory, to the exclusion of sleep center localization, or vice versa in our study. Klienman's evolutionary theory of sleep and wakefulness seemed to cover our findings more adequately. This

position involves extension of Economo's dual cortical-subcortical control of sleep and the notion of brain sleep and body sleep. Essentially, it does not ascribe sleep rhythm to any one conditioning nervous or endocrine mechanism, nor to multiple localization centers. It considers that in man there is an innate two-to-one polycyclic alternation of dreamless sleep and primitive wakefulness, which is a subcortical—probably mesodiencephalic function, and the acquired one-to-two 24 hour rhythm of sleep with dreaming and advanced wakefulness, which is a cortical function.

Observations made in this study have confirmed that electrosleep is a dreamless state into which the patient slips usually without being aware that he has gone to sleep. This supports the position that an infantile, primitive somnolent condition is attained, or the subcortical control center is dominant. Since this is a regressive phenomenon, however, it is also analogous to the Pavlovian concept of neural inhibition over the cerebrum. The stimulation of behavioral changes other than sleep which have been discussed earlier, speak strongly for the cortical conditioning component. At any rate, the procedure has proved to be very effective, and it is a valuable technic in the management of patients undergoing psychiatric rehabilitation.

The patients' behavioral alterations were carefully noted. As may be seen from *Table 3*, there was 100 per cent accomplishment of symptom relief—whether this was purely insomnia or involved other indices of emotional conflict. Patient 19, for example, relinquished the neuromuscular lower back spasms which impaired his locomotion and rest. Attainment of all criteria was evaluated by five judges (two psychologists, two psychiatrists and one social worker) who had done follow-up work with the patients. Seventeen individuals (53 per cent) resumed occupational duties with increased efficiency and enthusiasm. Nineteen (59 per cent) demonstrated more comfort and confidence in their social contacts. Eighteen persons (56 per cent) were able to gain insight in regard to their psychodynamics and to put this increased understanding to work in their best interests. Criteria No. 3 was more difficult to evaluate since the topic of improved sexual adjustment was not always explored. Behavioral changes were frequently appraised before a patient received final discharge from the hospital and follow-up focused more on work productivity and congeniality with others. Since we could not assume sexual life improved concomitantly, this rating of six persons (19 per cent) is necessarily low. Needless to say, the merit for all of these changes is not attributed to electrosleep alone. It is considered that the relaxation and nocturnal sleep re-

TABLE 3																																					
BEHAVIORAL ALTERATIONS																																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	<i>Totals</i> PER CENT PTS.			
<i>Knight's Criteria</i>																																					
I		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	32		
II		1	1	1	1				1	1			1	1	1	1	1	1	1	1	1		1				1							53	17		
III		1							1					1						1			1											1	19	6	
IV			1			1	1		1	1		1	1		1		1		1	1	1	1	1	1	1	1	1	1						59	19		
V		1		1		1		1	1	1		1	1		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	56	18		

stored cortical cells to their full excitatory potentiality through replenishment of the Nissl granules. This prepared the patients to better deal with emotionally charged memories which previously could not be tolerated due to neural cell fatigue. They were consequently enabled to execute resolutions of behavioral change.

The mean decrease in pulse and respiration rates is striking, although movement in the downward direction was, of course, expected because of the findings of Forster *et al.*⁴ Our means were 10.5 for pulse and 3.8 for respiration reduction. We did not record pre- and post-treatment blood pressures but only kept track of questionable cases for safety reasons. A lowering of at least 10 to 15 mm. Hg. was typically obtained. This figure is commensurate with Forster's results; he reported 10 to 20 mm. mean change.

TABLE 4	
PULSE AND RESPIRATION CHANGES	
Average pulse reduction	10.5
Average respiration rate reduction	3.8

Discussion

Electrosleep has been found to be valuable in the treatment of selective disorders of psychotic, neurotic and psychosomatic types. This does not make it a cure-all, but it adds significantly to other therapies, while handling symptom removal of insomnia and somatization itself. The pulse and respiration measurements, pre- and post-treatment, indicate that the effects of electrosleep are due to physical changes in the body economy and not merely to suggestion. Electrosleep is safe; no patients were harmed as a result of treatment.

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Lipoid Pneumonia

(Continued from page 78)

—atypical cells were found in the sputum and the x-ray findings were suggestive. It is especially difficult to differentiate these conditions when no history of intake of an oily substance can be elicited.

A good history of oil intake was obtained from three of these patients. One patient had a history of difficulty in swallowing, with a definite finding of cardiospasm some ten years previous. We feel lung biopsy should be resorted to when atypical cells are found in sputum or in bronchial aspiration. Of interest is that in none of these patients with atypical cells was carcinoma found. Volk recently reported 100 cases which had been followed up to 25 years. No carcinoma was found even though oils are hydrocarbons thought to have carcinogenic fractions.¹⁰ Sante reported two cases of bronchogenic carcinoma, one in pre-existing paraffinoma and the other with lipoid pneumonia.

X-ray findings are reported to have typical ground glass appearance; however, many times this is not characteristic and it is quite difficult to differentiate the shadows seen. If the sputum is not examined for fat on the cytology specimen, again the clue to the diagnosis may be missed.

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IS IT GOUT?

Gout accounts for about five per cent of all rheumatic diseases in the United States; it is *not* confined to the big toe. Injury can precipitate an acute attack in a given joint, including the elbow, hand or even the back—as well as the foot.

According to Dr. Dean F. Werner of North Kansas City, Missouri, many patients with gout go along for 15 years or more before they are diagnosed, one reason being that this metabolic disorder may exhibit elevated blood levels of uric acid but no systemic reactions for many years.

The patient often attributes his painful condition to some injury. Contusion, sprain, synovitis, bursitis or cellulitis may be the scapegoat. Gout can mimic all of these conditions.

A joint does *not* have to be red, hot and swollen to be diagnosed as gout. Also, gout affects joints other than the metatarso-phalangeal joints of the big toe and can affect two or more joints simultaneously.

Gout can occur in a red, warm elbow which a worker may have struck with an angle iron when the pipe wrench slipped. A painful back may be due to gout. Aspirin taken as a pain reliever may worsen the condition. In fact, Dr. Werner advises: "Salicylates are definitely contraindicated in gout." They promote the urinary excretion of uric acid, and gout in itself is a metabolic disorder characterized by elevated uric acid in the blood.

In a recent series of 4,000 industrial "injuries," gout was diagnosed in 20 persons (.5 per cent); only one had known previously that he had gout. Gout showed up six times in the foot, five times in the knee, four times in the hand and three in the elbow. Two were localized in the back. Not infrequently, falls or other injuries are responsible for triggering an acute attack.

Fortunately, there now are specific drugs available to relieve the acute and chronic stages of this disease. A special diet also is helpful. Organ foods, such as liver, kidney, sweetbreads, tongue and brains, as well as sardines and anchovies should be avoided. Alcohol, particularly beer, should be used in moderation or avoided altogether.—*Industrial Med. & Surg.*, Sept., pp. 717-719.

The President's Message

DEAR DOCTOR:

By the time this issue of the JOURNAL is on the desk of the membership, HIBAC will probably have issued rules and regulations under which PL 89-97, the 1965 amendment to the Social Security Act, will operate. These will undoubtedly bring mixed feelings and reactions in all of us. The smoke which may be created should not take our attention away from the challenge facing four of our specialties in their relationship with our hospitals. Their problems are still very real in spite of the defeat of the Douglas amendment and they warrant the full support, in their efforts, of all of organized medicine. The dilemma they face today may well belong to all of us tomorrow. The time to plug the hole in the dike is now.

Sincerely,

George Burkett, Jr., M.D.

President





Editorial COMMENT

Following is a report received from the American Medical Association on the actions and resolutions adopted at the meeting of the House of Delegates held in Philadelphia on November 28-December 1, 1965.

Public Response to Statements Discrediting Medicine

Resolved, That the Board of Trustees be directed to provide for immediate public response to statements which discredit American Medicine and its organizations; and be it further

Resolved, That state and local medical societies be encouraged to similarly react to statements appearing at the local level and concerning matters within the society's competence and knowledge.

PL 89-239—The Heart Disease, Cancer, and Stroke Amendments of 1965

The Council recommends that the state and local medical societies be urged at this time to assume leadership in the establishment of local advisory committees. The Council intends to follow closely the development of regulations for the implementation of this legislation and plans to institute educational programs for the guidance of state and local medical societies.

Medical Staff Utilization Committee and Medical Society Review Committee

State medical associations be urged to sponsor timely conferences similar to the national conference sponsored by the Council on Medical Service, November 27, 1965, to provide guidance for physicians in establishing utilization review and claims review programs at the local level.

AMA House of Delegates

Physicians Hospital Privileges

The AMA House of Delegates in recognition of its affirmed policy, reaffirm and again communicate to all members of the American Medical Association and through the AMA representatives to the JCAH that all doctors of medicine, regardless of their field of practice, should be accorded hospital privileges commensurate with their training, experience, and demonstrated competence on approval by the medical staff.

Perinatal Study Committees in Hospitals

All hospitals and county medical societies make an active investigation of all perinatal deaths occurring in their respective areas by organizing voluntary, local perinatal mortality study committees.

Hospital Staff Privileges for Allied Health Professions

The Commission to Coordinate the Relationships of Medicine with Allied Health Professions and Services recommends that the statements of position be sent to the Joint Commission on Accreditation of Hospitals and that they be forwarded to each constituent medical association with the request that they in turn send them to the members of their respective associations.

Hospital Signs on Highways

Resolved, That the American Medical Association encourage its constituent state associations and component county societies to participate in public hearings for the purpose of assisting in the development of appropriate standards which would assure uniform signs on our limited access highways and interstate systems indicating the location of the nearest licensed hospital.

Physician Representation on Hill-Burton Hospital Advisory Councils

The state medical associations act to assure proper physician representation on their Hill-Burton hospital advisory councils as well as other state health advisory councils which may be established; and

State medical associations be urged to transmit to the Council on Medical Service their observations on the operation of state hospital advisory and health advisory councils so that periodic reports on these activities may be made to the House of Delegates.

Request for Guidance in Establishing Hospital Facilities for Emergency and Acutely Ill Patients

In keeping with established AMA policy, state medical associations and county medical societies be urged to initiate and help formulate community health facility and services studies for their local areas and

that organized medicine at all levels be urged to play an active role in the stimulation and development of voluntary community health facility and services planning.

Effect Upon Population Restlessness of Overcrowded and Unsanitary Living Conditions

Resolved, That the American Medical Association encourage the medical profession at state and county levels to work in closer liaison with their respective health officers to improve general health conditions of our population.

Health Education in Colleges and Universities

State and local medical societies are urged to do everything possible to stimulate colleges and universities in their areas to include appropriate health education programs for all students according to the stipulations set by the Council on Medical Service.

KANSAS STATE DEPARTMENT OF HEALTH						
TOPEKA, KANSAS						
Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence						
Summary of Cases Reported in October, 1965 and 1964						
Diseases	1965	1964	5-Year Median 1961-1965	1965	1946	5-Year Median 1961-1965
Amebiasis	1	4	4	4	25	35
Aseptic meningitis	—	10	1	3	21	9
Brucellosis	1	1	1	4	3	6
Diphtheria	—	—	—	1	3	—
Encephalitis, infectious	10	17	5	40	78	25
Gonorrhea	251	276	262	2148	2672	2373
Hepatitis, infectious	25	45	25	395	558	395
Meningococcal meningitis	—	—	—	13	8	13
Pertussis	3	—	2	23	15	23
Poliomyelitis	—	—	—	—	1	—
Rheumatic fever	2	—	—	4	3	4
Salmonellosis	49	34	40	285	253	253
Scarlet fever	4	5	5	71	84	288
Shigellosis	11	24	15	113	240	113
Streptococcal infections	132	155	132	2476	1386	1237
Syphilis	89	90	104	745	788	923
Tinea capitis	5	5	5	55	70	70
Tuberculosis	26	18	18	221	217	224
Tularemia	2	—	1	4	4	9
Typhoid fever	—	—	—	—	3	2

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

Have you wondered why our present Congress has passed such unusual legislation in the past few months? Such legislation as subsidizing rents for "poor" people with incomes as high as \$8,900? Such legislation as the "poverty bill" which prevents the governor from interfering with the program in his own state? Such legislation as to provide medical care for rich and poor alike because the recipient has reached his 65th birthday?

It isn't difficult to figure it out. About 60 per cent of Congress were elected with the help of the labor leaders; in a word, COPE.

This is what KaMPAC is for: To elect Congressmen and Senators who have our basic political philosophy. We aren't alone! In the past few months a new organization has been formed, BIPAC (Business-Industry Political Action Committee) which is nationwide. The Kansas State Chamber of Commerce is now forming one in our state which they hope will be an example for a national unit. The pharmacists are also forming one.

The ground-swell is beginning and if each of us does his part, the influence of COPE will be lessened in the next Congress.

You need to be a member of KaMPAC.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Personalities—IN KANSAS MEDICINE

With the New Year came the retirement of **Frank Boggs**, Topeka. Dr. Boggs has practiced ophthalmology in that city since 1922.

An award for ten years of service rendered on both the national and state level was presented to **Wendell Grosjean**, Winfield, at the quarterly meeting of the Cowley County unit of the American Cancer Society.

William H. Crouch, Topeka, has been appointed medical advisor for the 1966 Shawnee County March of Dimes campaign.

In January, **Donald D. Goering** moved from Tribune to Salina where he will continue in private practice.

James W. Rentfrow, Hays, was elected president of the Ellis County Heart Association at the group's December meeting held in Hays.

The problems faced by laryngectomees were recently discussed by **Lee S. Fent**, Newton, on WIBW-TV's morning "Rush Hour." Dr. Fent is chairman of the Public Education committee and immediate past president of the Kansas Division of the American Cancer Society.

New medical staff officers for 1966 have been announced by several hospitals over the state.

Succeeding **W. C. Weir**, Erie, as president of the

Labette County Medical Center staff is **Charles H. Miller**, Parsons. **Victor Jackson**, Altamont is the new vice president, and **John P. White**, Parsons, is secretary-treasurer. At the St. Luke hospital in Marion, the new president and chief of staff is **Charles R. Magee**; vice president, **James A. Wheeler**, and secretary, **Ralph R. Melton**, all of Marion. The medical staff of the St. Catherine hospital, Garden City, has elected **John O. Austin**, president, succeeding **Robert Fenton**, who will remain as a member of the executive committee. Other officers are **John W. Turner**, vice president, and **Frank Eichhorn**, secretary-treasurer.

Quentin C. Huerter, Kansas City, has been installed as president of the St. Margaret hospital medical staff. **John O. Baeke**, Overland Park, is president-elect, and **John E. Ingram**, Kansas City, is secretary-treasurer. At Providence hospital, Kansas City, the new president is **A. O. Tetzlaff**. **Robert H. Kurth** is president-elect.

W. A. Smiley, Jr., Goodland, is the instructor for an eleven-week medical self-help training course. The course, which began in January, is sponsored by the Sherman County Extension Service.

NEW MEMBERS

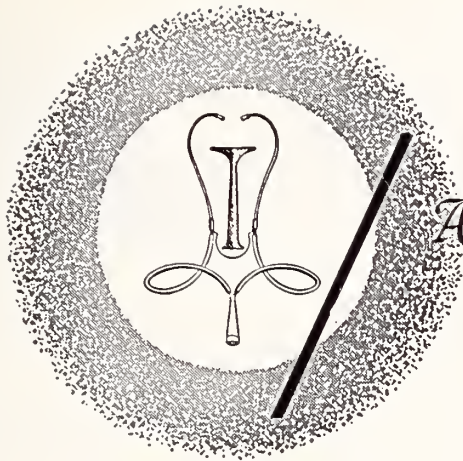
The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Jimmie A. Gleason, M.D.
302 Medical Plaza Building
Topeka, Kansas

Richard D. Nabours, M.D.
823 West 10th Street
Topeka, Kansas

Lawrence E. Hart, M.D.
12 Blair Building
Atchison, Kansas

Phillip B. Sisk, M.D.
310 Medical Arts Building
Topeka, Kansas



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

FEBRUARY

- Feb. 24 American Society of Internal Medicine, Kansas Chapter, Broadview Hotel, Wichita. For reservations contact James B. Fisher, M.D., 3244 E. Douglas, Wichita.
- Feb. 25 Regional meeting for internal medicine specialists, the American College of Physicians, Lassen Hotel, Wichita. For further information contact Sloan J. Wilson, M.D., University of Kansas Medical Center, Kansas City, Kansas 66103.

MARCH

- Mar. 1-3 31st Midwinter Clinical Session, Colorado Medical Society, Brown Palace Hotel, Denver. Write Colorado Medical Society, 1809 East 18th Ave., Denver 80218.
- Mar. 7-10 29th annual meeting of the New Orleans Graduate Medical Assembly, Roosevelt Hotel, New Orleans. The 21st Clinical Tour of the New Orleans Graduate Medical Assembly follows the annual meeting in New Orleans. March 12 is the departing date for a trip around the world in combination with International Clinical Meetings in Tokyo, Japan, and New Delhi, India. For more information write the New Orleans Graduate Medical Assembly, Room 1528, 1430 Tulane Ave., New Orleans 70112.
- Mar. 18-19 Conference on Rural Health, Broadmoor Hotel, Colorado Springs. Bond L. Bible, Ph.D., Secretary, 535 North Dearborn, Chicago 60610.
- Mar. 27-30 Missouri State Medical Association, Muehlebach Hotel, Kansas City, Missouri. T. R. O'Brien, Exec. Secretary, 634 North Grand, St. Louis 63103.

APRIL

- Apr. 1-2 18th annual Midwest Cancer Conference, Broadview Hotel, Wichita. Approximately 10 hours of Category II credit is available for general practitioners who attend. For further information contact the Kansas Division of the American Cancer Society, 824 Tyler, Topeka.
- Apr. 4-6 Biomedical Communication: Problems and Resources, Waldorf-Astoria Hotel, New York City. For further information, contact James Lieberman, Director, Public Health Service Audiovisual Facility, Communicable Disease Center, Atlanta, Georgia 30333.
- Apr. 4-8 39th annual Spring Congress in Ophthalmology and Otolaryngology, Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Virginia. For information write: Superintendent, P. O. Box 1789, Roanoke, Virginia.
- Apr. 25-27 Annual spring session of the American Academy of Pediatrics, Queen Elizabeth Hotel, Montreal, Canada. Write the American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204, for preliminary program, housing and registration forms.

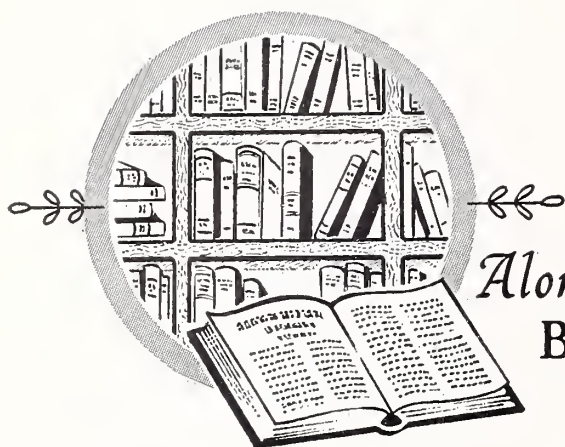
POSTGRADUATE COURSES

University of Kansas:

- Feb. 21-24 *Surgery*
Mar. 7-9 *Pediatrics*
Mar. 9-10 *Maternal and Infant Health*
Mar. 15-17 *Cardiovascular Diseases*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, 39th & Rainbow Blvd., Kansas City, Kansas 66103.

(Continued on page 94)



Along The BOOKSHELF

Clendening Medical Library

Recent Acquisitions

- Brues, A. M. and Sacher, G. A., eds. Aging and levels of biological organization. Univ. Chicago, 1965.
- Chapman, A. H. Management of emotional problems of children and adolescents. Lippincott, 1965.
- Christensen, C. M. The molds and the man; an introduction to the fungi. 3d ed. rev. Univ. Minnesota, 1965.
- Cruickshank, Robert, ed. Medical microbiology; a guide to the laboratory diagnosis and control of infection. 11th ed. Williams & Wilkins, 1965.
- Eysenck, H. J. and Rachman, S. The causes and cures of neurosis. . . . Knapp, 1965.
- Gaillard, P. J., Talmage, R. V., and Budy, A. M., eds. The parathyroid glands: ultrastructure, secretion, and function. Univ. Chicago, 1965.
- Garner, L. L. Tonography and the glaucomas. Thomas, 1965.
- Geist, Harold. The child goes to the hospital; the psychological aspects. . . . Thomas, 1965.
- Glynn, L. E. and Holborrow, E. J. Autoimmunity and disease. Davis, 1965.
- Goldberger, Emanuel. How physicians think; an analysis of medical diagnosis and treatment. Thomas, 1965.
- Greenhill, J. P. Office gynecology. 8th ed. rev. and enl. Year Book, 1965.
- Howells, J. C., ed. Modern perspectives in child psychiatry. Thomas, 1965.
- Jaques, L. B. Anticoagulant therapy: pharmacological principles. Thomas, 1965.
- Kaplan, H. S., Robinson, S. J., and Abrams, H. L. Congenital heart disease . . . 2d ed. McGraw-Hill, 1965.
- Katz, A. H. and Felton, J. S., eds. Health and the community; readings. . . . Free Press, 1965.
- Kernan, R. P. Cell K. Butterworths, 1965.
- Kimbrough, R. K., ed. Gynecology. Lippincott, 1965.
- Laffal, Julius. Pathological and normal language. Atherton, 1965.
- Lichtenstein, Louis. Bone tumors. 3d ed. Mosby, 1965.
- Littler, T. S. The physics of the ear. Pergamon, 1965.
- Long, E. C., ed. Health objectives for the developing society; responsibility of individual, physician, and community. Duke Univ., 1965.
- McGregor, I. A. Fundamental techniques of plastic surgery and their surgical applications. 3d ed. Williams & Wilkins, 1965.
- McLean, J. M. Atlas of cataract surgery. Mosby, 1965.
- Maggio, Elio. Microhemocirculation; observable variables and their biologic control. Thomas, 1965.
- Mullarky, R. E. The anatomy of varicose veins. Thomas, 1965.
- Novak, E. R., Jones, G. S., and Jones, H. W., Jr. Textbook of gynecology. 7th ed. Williams & Wilkins, 1965.
- Randall, W. C., ed. Nervous control of the heart. Williams & Wilkins, 1965.
- Rogler, L. H. and Hollingshead, A. B. Trapped: families of schizophrenia. Wiley, 1965.
- Rozin, Samuel. Uterosalphingography in gynecology. . . . Thomas, 1965.
- Sauer, G. C. Teen skin. Thomas, 1965.
- Sonneborn, T. M., ed. The control of human heredity and evolution. Macmillan, 1965.
- Szasz, T. S. Psychiatric justice. Macmillan, 1965.
- Tracy, J. E. Tracy's The doctor as a witness. 2d ed. by W. J. Curran. Saunders, 1965.
- Vedder, C. B., ed. Problems of the middle-aged. Thomas, 1965.
- Webb, S. J. Bound water in biological integrity. Thomas, 1965.
- White, R. R., ed. Atlas of pediatric surgery. McGraw-Hill, 1965.
- Williams, P. C. The lumbosacral spine: emphasizing conservative management. McGraw-Hill, 1965.
- Yinger, J. M. Toward a field theory of behavior: personality and social structure. McGraw-Hill, 1965.



MANAGEMENT OF EMOTIONAL PROBLEMS OF CHILDREN AND ADOLESCENTS, by A. H. Chapman, M.D. J. B. Lippincott Co., Philadelphia, 1965. 315 pages.

Dr. A. H. Chapman modestly states in his preface that this book "is an attempt to put into the hands of physicians a clear, simple guide to the emotional disorders of childhood and adolescence." The book is this and much more. Doctor Chapman writes well and is willing to convey quite openly his thoughts, his judgments, his insights and his advice on the diagnosis of emotional illness in childhood and treatment tools that are useful for the physician. It is a book written for the general medical practitioner rather than the specialist in the field, although all that Doctor Chapman writes is clinically sound and acceptable to the specialist. However, he has obviously chosen to be of practical help to the physician in the everyday practice of medicine.

The book is divided into four major parts. Part I on the healthy child offers concepts about normal emotional needs and the normal adjustment problems of children growing to adulthood. Part II is a survey of the emotional disorders of childhood and a discussion of the management of these by the family physician. Part III approaches the area of interviewing parents and children, and Part IV outlines for the pediatrician and the general practitioner what specialized resources are available through child psychiatry, and through other specialized treatment services. In a lucid manner one understands how a child psychiatrist helps children in play therapy, verbal interviewing, group therapy and psychiatric inpatient treatment. It is this last topic which then leads to the final portion of the book which discusses the nature and treatment of severe emotional disturbances in childhood and adolescence.

Doctor Chapman presents his material solidly, concretely, and with frequent case illustrations. He helps the family physician to think about the family patterns, the environmental stresses and the socio-cultural background to both normal child development and its disturbances.

It is rewarding to read a book which with a minimum of theoretical discussion nonetheless remains a scientifically sound presentation of complex subject matter.—J.C.H.

PHYSIOLOGIC FOUNDATIONS FOR MARRIAGE COUNSELING, by Joseph B. Trainer, M.D. C. V. Mosby Company, St. Louis, 1965. 287 pages. \$8.00.

Dr. Marie Jahoda's investigations of mental health problems in the United States revealed the fact that almost half of the persons who seek help for emotional or marital problems go first to a minister. Another very large percentage of such people go first to a general practitioner of medicine. Together, general practitioners and ministers make up the court of first resort for almost 70 per cent of people having emotional or marital problems. But there are serious defects in the training and background of both of these groups. Theological education is now trying in a serious way to close these gaps in the training of ministers. Medical education, however, has not, by and large, taken similar steps. Research concerning medical students and house officers tends to reveal that, in the area of sex, they display a number of inordinate fears and blocks of their own, which severely limit them in their attempts to help people with sexual problems.

Doctor Trainer has written an informative, profound and witty book which is aimed straight at the

heart of this problem. He approaches students and house officers through a familiar channel, the physiology of sex. But he does not stop there; he places this physiological approach in its proper setting as one of the basic fundamental approaches to marriage problems. His advice to young physicians—and old ones, as well, is not only physiologically solid, but also culturally and psychiatrically informed.

The book is marked with a warm wit and an entertaining style throughout, even in the scientific chapters. Doctor Trainer has obviously drawn on many warm relationships with students, particularly medical students at the University of Oregon, where he teaches. One of its side effects certainly ought to be the lessening of anxiety among medical students, not only concerning their counseling functions as physicians, but also concerning their own personal approaches to sex. This book is a corrective to much that has up to now been inadequate in medical education.

This reviewer, as one who has spent a number of years counseling with medical students and house officers concerning their problems, believes it should be required reading in all medical schools.—K.R.M.

HANDBOOK OF OBSTETRICS AND GYN-ECOLOGY, by Ralph C. Benson, M.D. Lange Medical Publications, Los Altos, California. 658 pages illustrated. \$5.00.

This is one of the most excellent handbooks on the subject of obstetrics and gynecology that I have had the pleasure of reading. It is very precise and is completely up to date. There are many excellent illustrations concerning the anatomy and some of the specific diseases that do occur.

The book is equally divided into two sections and almost every subject in the field of obstetrics and gynecology is very adequately covered. There is one portion in the section on gynecology concerning medical genetics which brings the reader up to date on the basic knowledge concerning this new field. Possibly a section on venereal disease should be included, although there are small sections in the book that do discuss it to some degree.

I would recommend this book for reading for anyone practicing obstetrics and gynecology, or for one in a profession where gynecology might be needed. This is an excellent, comprehensive book on the subject.—J.A.G.

Announcements

(Continued from page 91)

University of Colorado:

Mar. 16-18 *Ultrasonic Diagnosis*

Apr. 4-6 *Gastrointestinal Pathology*

Apr. 7-9 *Clinical Gastroenterology*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Missouri:

Mar. 2-3 *Impaired Lower Extremity Function*

Apr. 14-15 *12th Seminar in Urology* (Kansas City, Mo.)

Apr. 20-21 *Family Practice*

For further information write the Office of Continuing Medical Education, University of Missouri, School of Medicine, Columbia, Missouri.

Mar. 15-19 *Fundamentals of Otolaryngologic Allergy*, University of Tennessee College of Medicine.

The driving drinker is the primary problem—rather than the drinking driver, according to a two-year study in San Francisco. Dr. Julian A. Waller of the California Department of Public Health reported a study showing that a majority of drinking drivers in accidents or apprehended for drunken driving were problem drinkers rather than social drinkers. Another study showed that 38 per cent of a group of drunken drivers had a record of prior offenses while under the influence of alcohol. Cirrhosis of the liver or fatty livers were found in almost two-thirds of those drivers who died within six hours of the accident and who had high blood levels of alcohol. In contrast, only 15 per cent of the alcohol-free fatalities had similar abnormal findings associated with the liver. Although alcoholism is a major factor in driving accidents, Dr. Waller cautioned that learning to drive and experimenting with drinking makes a hazardous combination. This was underscored by the comparatively low blood alcohol values found in drivers under age 25 who died in accidents.—*Modern Med.*, Oct. 25, p. 64.



HOMER S. FOUTZ, M.D.

Dr. Homer S. Foutz, 69, died on October 23, 1965, at Fitzsimons Hospital in Denver, Colorado. He had been a practicing physician in Minneapolis, Kansas, since 1933.

Homer Foutz was born June 25, 1896, at Guide Rock, Nebraska. As a young man he attended McPherson College and taught school until 1918 when he enlisted in the U. S. Navy. After the war he returned to McPherson College, graduating with a Bachelor of Science degree in 1922. In 1931, he was graduated from the University of Kansas School of Medicine, and after completing his internship and residency, established his practice in Minneapolis. He was a veteran of both World Wars, and a member of civic and fraternal organizations. Dr. Foutz was active in community affairs, taking a particular interest in the Boy Scout organization.

He is survived by his wife and son.

PHILIP W. MORGAN, M.D.

Dr. Philip W. Morgan, Emporia, died on January 15, 1966, at the age of 63.

Dr. Morgan was a lifetime resident of Emporia, born on November 4, 1902. He attended the College of Emporia and Kansas State Teachers College, and completed his requirements for a Bachelor of Science degree at the University of Pennsylvania. He received his Doctor of Medicine from that university in 1927. He returned to Emporia in 1928, later interrupting his practice for postgraduate work in Vienna, London and Edinburgh. He was a specialist in diseases of the heart and in 1962 was named "Mr. Heart of Kansas" at a meeting of the Kansas Heart Association, which he served as president. During World War II he served in the medical division of the Air Corps. Dr. Morgan was a member of a number of medical organizations, a member of the Dean's Advisory Committee on Postgraduate Medical Education at the University of Kansas School of Medicine, and a lecturer at the university.

Survivors include his wife, son and daughter, and brother, J. L. Morgan, M.D., of Emporia.

The Kansas Medical Society—1965-1966

OFFICERS

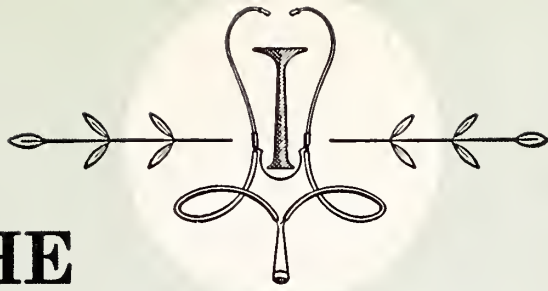
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Ford.....	Robert D. Boles, Dodge City.....	Clair M. Alderson, Dodge City
Franklin.....	David G. Laury, Ottawa.....	Louis N. Speer, Ottawa
Geary.....	Robert M. Carr, Junction City.....	Leslie J. Brethour, Junction City
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Jackson.....	E. C. Moser, Holton.....	M. Ross Moser, Holton
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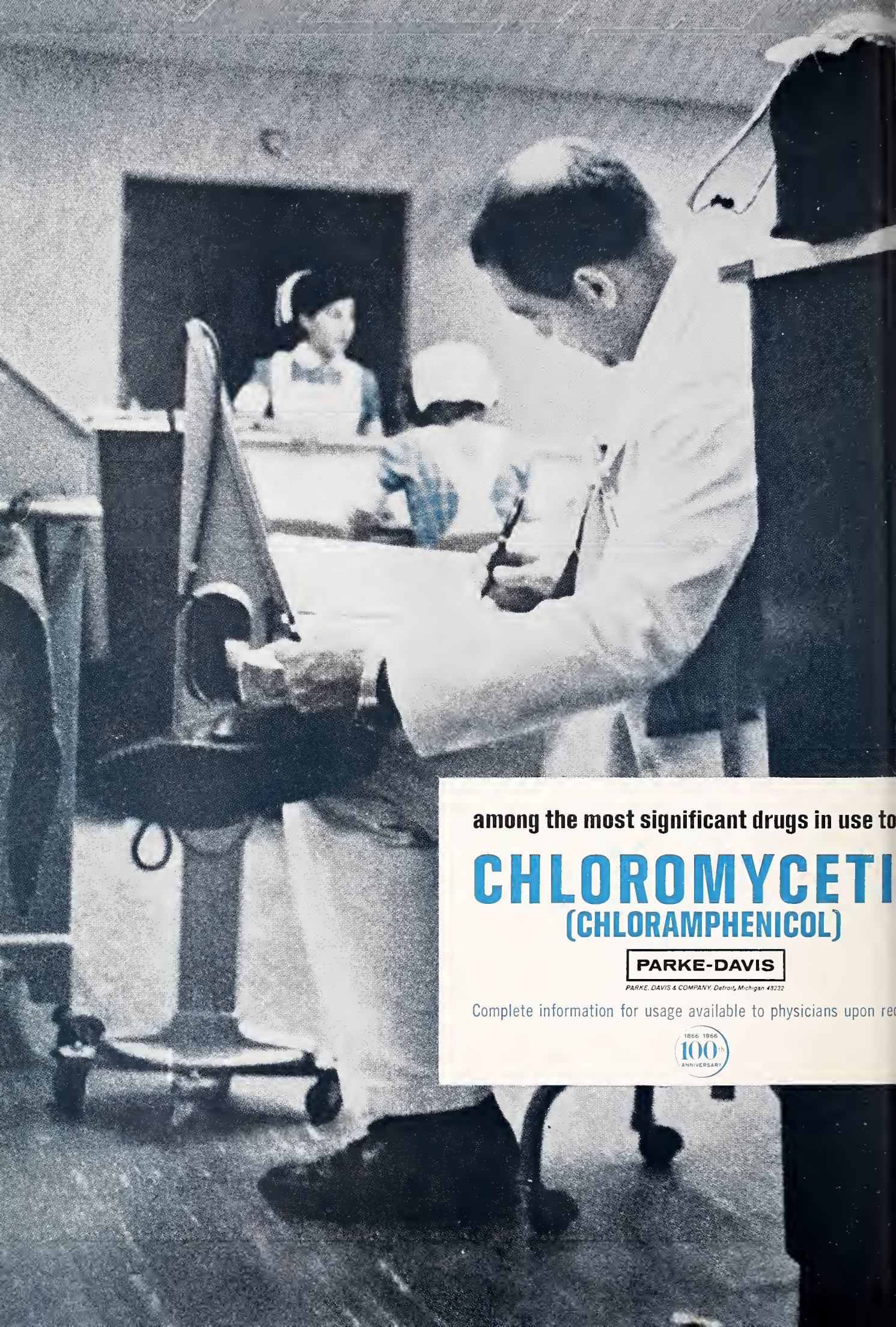
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Contents for March

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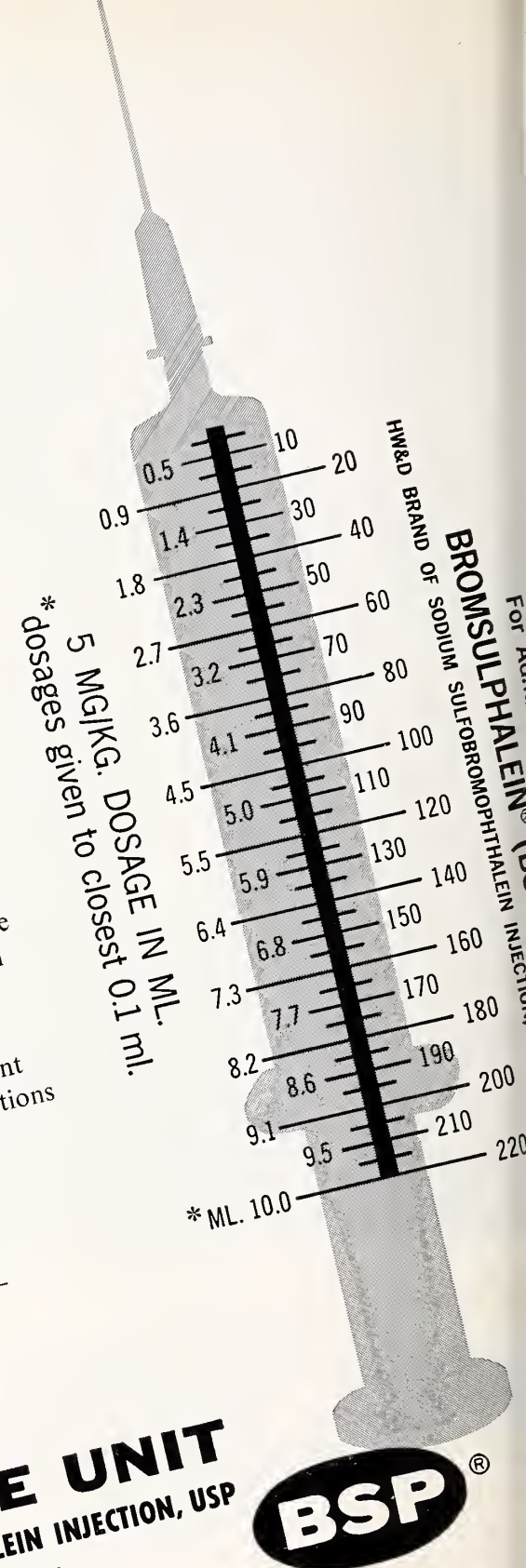
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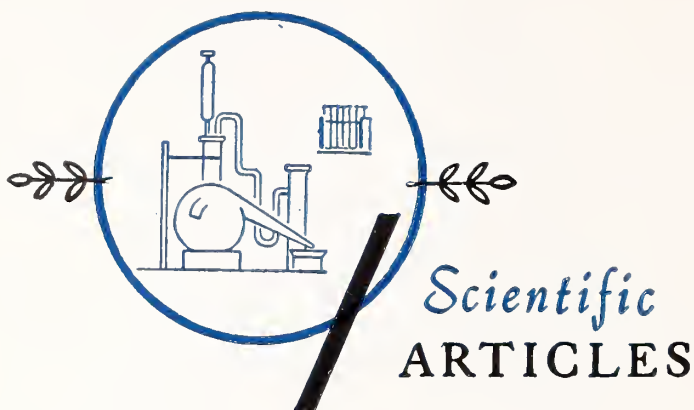


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New This Year

The Department of Anesthesiology

RAY T. PARMLEY, M.D., *Kansas City, Kansas**

THE BOARD OF REGENTS of the State of Kansas at its meeting of April 23, 1965, authorized the University of Kansas Medical Center to establish a Department of Anesthesiology. Five fulltime staff members and seven residents assumed their duties July 1, 1965, thus beginning the new department.

The development of any new anesthesiology department is exciting, just as the development of the specialty itself has been. Our indebtedness to those who laid the foundation for this growth cannot be overlooked, any more than the specialty can overlook Morton's administration of ether to a patient for a surgical operation in 1846. What is seen today, and the foundation upon which we shall build, we owe to the efforts of Dr. Paul Lorhan and Dr. Evan Fredrickson. They and their associates, in giving tirelessly of themselves, developed the Section of Anesthesiology when it was a part of the Department of Surgery. They fostered the residency program in anesthesiology; they sustained a continued interest in the field of research; and they established the annual postgraduate course in anesthesiology. This course, which was begun by Doctor Lorhan, is recognized

as one of the oldest and best established programs in anesthesiology.

The newly formed Department of Anesthesiology will neglect none of these accomplishments, and each

It may be expected that the growth of the newly formed Department of Anesthesiology will parallel the growth of the University of Kansas Medical Center. The needs of the individual patient will be met and an opportunity for the medical student, the intern and the resident to receive training in the specialty will be provided.

of its members is determined to continue the development of the new Department, as well as the specialty of anesthesiology. Although the specialty may well grow in ways not yet realized, the Department's development in the areas outlined below is certain.

Areas of Consultation

The Department, in addition to the administration of approximately 6,500 anesthetics each year, con-

* Professor and Chairman of the Department of Anesthesiology, University of Kansas School of Medicine, Kansas City, Kansas.

sults with other medical departments throughout the institution in the development of the highest standards of medical practice and patient care. The role of the Department in the preclinical years has been increased. The medical student is being taught the practical applications of physiology and pharmacology in the administration of anesthetic drugs. The rapidly increasing need for respiratory and circulatory resuscitation has been recognized and the broadest avenues of approach are being utilized for its fulfillment.

Education

The primary purpose of any hospital complex is the care of the individual patient, but the need for instruction must also be recognized. The instruction offered by the Department of Anesthesiology includes that given to the medical student, the intern, and the resident, as well as to personnel in paramedical specialties. The role of personnel in paramedical specialties has not been clearly defined in medical practice, and particularly in anesthesiology their training must be more precisely outlined and their duties clarified.

Medical Students. In most medical school curricula, instruction in anesthesia is necessarily limited, and it is incumbent upon the faculty to make the most effective use of this allotted time. The number of hours assigned to anesthesia in a curriculum is not as critical as the manner in which those hours are utilized. Instruction in the preclinical years is given in conjunction with the Department of Pharmacology and the Department of Physiology, for example, where the role of intrapleural pressure and the problems of respiratory obstruction are taught.

During the clinical years the medical student attends lectures and seminars in the Department where the most recent treatment of narcotic poisoning, tetanus, shock, hemorrhage and trauma are reviewed. Infant resuscitation, sometimes neglected in past years, will be taught by those who are actually engaged in its practice. As the student begins to comprehend the responsibility of the physician to the unconscious patient, he also learns the practical application of many drugs and becomes aware of the general problems of ventilation. In the operating room the principles of inhalation, intravenous, spinal and local anesthesia are pointed out and many special problems concerned with intestinal obstruction or other complications are reviewed. The medical student is taught to administer a simple anesthetic and to recognize and treat respiratory obstruction or depression as well as circulatory shock. He learns that the emergencies which involve the respiratory and circulatory systems require prompt and intelligent care if tragedies are to be avoided. The number of instances where the med-

ical student may subsequently use this knowledge is exhaustive, a few of them being narcotic poisoning, diabetic coma, uremia, increased intracranial pressure, poliomyelitis, tetanus, Ludwig's angina, angioneurotic edema, bronchial asthma, cardiac failure, aspiration of vomitus or foreign bodies, asphyxia neonatorum, hemorrhage, syncope and convulsions. None of these modes of instruction fall outside of the current beliefs of those who teach the basic sciences and clinical medicine.

Interns. The intern or the medical, surgical or obstetrical resident who wishes to spend a short time on the anesthesiology service is given a wider experience. During this time he is exposed to the technique of direct laryngoscopy and tracheal intubation for use in anesthesia or in resuscitation. He is introduced to the concept of pre- and postoperative rounds and is allowed to prescribe preanesthetic medications for the patients to whom he is assigned. This training makes it possible for him to appraise problems which may arise in the future and to seek consultation whenever it is necessary. By attending the lectures given to the anesthesiology residents, he learns the relation of the basic sciences to anesthesia, thereby becoming familiar with time-honored examples of their application. At the staff lectures and seminars the possible physiological aberrations consequent to the administration of the many anesthetic drugs are discussed for the benefit of interns and residents. The need for their recognition and the compensatory devices employed by the anesthesiologist are emphasized. The intern learns the inherent dangers of all forms of anesthesia and, more important, he learns that only by careful monitoring is it possible to recognize early warning signals of impending difficulties. But above all, he learns the fundamentals of the basic sciences, which enable him to reason intelligently in solving the problems which arise during the administration of anesthesia.

Residents. An effort is made to select the best qualified physicians for the residency program. Each resident is individually evaluated and is subsequently taught as rapidly as possible. Although he is given a series of orientation lectures and taught the use of the various pieces of equipment, he is expected to pursue these techniques and to ask intelligent questions on his own. As soon as possible he takes his place in the team approach to the patient. He is introduced to daily pre- and postoperative rounds with a staff anesthesiologist and instructed in the methods of preoperative evaluation and the choices of procedures and anesthetic agents. His first experience in the actual administration of anesthesia, then, begins with minor procedures of short duration and under the immediate guidance of an anesthesiologist. Following this, he is taught endotracheal anesthesia,

spinal anesthesia and sympathetic blocks. Gradually he is assigned to the more difficult thoracic and extracorporeal procedures. During this time every effort is made to teach him the diagnosis and management of postanesthetic complications.

The formal education program is conducted over a two-year period in which subjects pertinent to clinical anesthesia are studied. The basic sciences are recognized as an important part of this didactic teaching program. Formal lectures are given by members of the staff and guest lecturers. The resident is not only encouraged to develop skills in the use of the many anesthetic drugs but is also taught to evaluate them simultaneously. Recognition is also given to the importance of basic research and a third year of residency training is provided for this purpose. Ordinarily, however, it is thought that a two-year residency program offers little opportunity for extensive research.

In summary, then, the residency program is designed to emphasize the improvement of patient medical care and to integrate all available knowledge in clinical anesthesia.

Service in Related Areas

Inhalation Therapy. The role of the Department of Anesthesiology at the University of Kansas Medical Center in inhalation therapy has not yet been determined. It is certain, however, that the anesthesia staff will be called upon to act as consultants in clinical problems pertaining to respiratory function.

Few physicians persist in the old concept of inhalation therapy as being related only to nasal catheters and oxygen tents. Procedures once thought of as sophisticated, such as the measurement of arterial oxygen content, saturation or tension are now carried out routinely, nor is it feasible today to depend upon untrained nurses to set up and supervise the complicated apparatus which modern physicians select for the treatment of their patients. Some physicians now realize that many fundamental concepts were poorly understood in the past and that medical students, interns and residents in any phase of training must be more carefully instructed in the problems of pulmonary gas exchange and the accumulation of secretions within the respiratory tract. The pathologic physiology of respiratory diseases such as pulmonary emphysema, atelectasis, and bronchial asthma must be presented from the standpoint of maintenance of the patient's airway, humidification of inspired gases, and the use of aerosols and bronchodilator drugs. Few interns or residents understand the difficulty with which carbon dioxide is removed in the presence of respiratory depression. This is because in the past emphasis has been put only on increasing the oxygen content of inspired air. The use of the indi-

vidual's basic knowledge and reasoning in dealing with this and other concepts must be stressed while the technical use of mechanical equipment is demonstrated.

The Recovery Room, Emergency Room and the Intensive Care Unit. Many of the medical emergencies which arise in these three areas can only be resolved by those who possess a knowledge of the fundamentals of physiology and pharmacology combined with anesthetic techniques. The ventilatory problems in all three areas are similar and speaking of the areas together should not imply that any simple solution is to be found.

To obtain the necessary trained personnel for these areas is an overwhelming responsibility. An almost one-to-one ratio of trained personnel to patient is necessary to monitor the mechanical and electronic equipment involved. In other words, constant attendance around the clock is required for each individual patient who is placed on a mechanical ventilator. We are not only a long way from achieving this ideal, but few have been able to envision its accomplishment within their lifetimes.

Research

A good educational environment provides opportunities for research as well as teaching. The discovery of new knowledge, then, must be taught as well as the dissemination of what is already known. At the University of Kansas Medical Center research is conducted by faculty staff members and by students. Thus all physicians, through their exposure to the goals and methods of scientific research, learn the need for self education which is so necessary throughout their professional careers. Nearly 175 different research projects are underway at the University of Kansas Medical Center, and an estimated two and one half million dollars is being spent annually. The Department of Anesthesiology has shared in this research in the past and expects, in its normal development, to grow in this area also.

Postgraduate Medical Education

The University of Kansas Medical School has an elaborate program in the field of postgraduate medical education and the Department of Anesthesiology participates in this activity.

Annual Postgraduate Course in Anesthesiology. This course, offered each year, draws both lecturers and participants on a national basis. It is the ambition of the Department to explore through the years the recent advances in the various facets of anesthesiology, as well as its future trends, and to provide a stimulating and educational experience for those who attend.

(Continued on page 103)

Postoperative Emergency

Spontaneous Esophageal Rupture Following Thalamotomy

M. L. CHEATHAM, M.D., and

C. E. BRACKETT, M.D., *Kansas City, Kansas**

SPONTANEOUS RUPTURE of the esophagus was first reported by Boerhaave in 1841. This condition has been defined as a tear, due to sudden increase in intra-abdominal pressure, occurring in a previously healthy esophagus.⁸ It must be differentiated from perforation of the lower esophagus due to peptic esophagitis and ulceration. Spontaneous rupture is uncommon but not rare. The present case occurred during the act of vomiting two days after right thalamotomy for ataxia and intention tremor.

Case Report

V. R. was a 49-year-old white male with a four year history of progressive rigidity, intention tremor, and dysarthria of severe degree following a three-day febrile episode in 1960. Family and past histories were not contributory. The physical examination was normal. Walking, speech, or any other voluntary motion was nearly impossible due to severe intention tremor. Laboratory investigation including EEG was normal.

On May 8, 1964, a right stereotaxic procedure² was done using a 2 megacycle current with probe temperature of 49.4. This produces a 10.5 mm temporary and 4 mm permanent lesion. The first lesion (*Figure 1*) was 14 mm behind the anterior commissure, 12 mm lateral to the midline and 2 mm above the commissural line. The second lesion was 2 mm below the commissural line at the same coordinates. A third lesion was made 18 mm behind the anterior commissure, 14 mm lateral to the midline and 2 mm above the commissural line. The fourth lesion was on the commissural line and the fifth lesion 2 mm below the commissural line at the same anterior and lateral coordinates used for the third lesion. The probe was then moved to the globus pallidus 2 mm behind the anterior commissure, 14 mm lateral to the midline and 2 mm above the commissural line. No relief of tremor was achieved with any of these lesions and no larger permanent lesions were made.

Postoperatively the patient was alert, had a slight left hemiparesis and no signs of hypothalamic damage. Meals were taken well for one and a half days. He vomited 200 cc during lunch of the second post-

operative day. At 4:30 p.m. of the same day, he suddenly vomited explosively. The vomitus consisted of undigested food and gastric contents with a single small dark blood clot. The patient immediately complained of severe epigastric and substernal pain, became pale and developed grunting labored respirations. An EKG was done which revealed only sinus tachycardia. A chest x-ray was normal. At 5:15 p.m. slight cyanosis of the

A successfully treated case of spontaneous rupture of the esophagus occurring in a case of motor dyskinesia is reported. The possible danger of severe motor incoordination during vomiting is discussed and the need for early treatment stressed.

head and neck was observed and the oral temperature was 104°. Subcutaneous emphysema was palpated over the upper chest and neck and decreased breathing sounds were present on auscultation over the left chest. A repeat chest x-ray demonstrated mediastinal emphysema (*Figure 2*). A diagnosis of spontaneous rupture of the esophagus was made and preparations for emergency left thoracotomy were begun. A unit of Plasmanate® was administered and followed by intravenous fluids with 20 million units of aqueous penicillin added. Enroute to the operating room the chest x-ray was repeated (*Figure 3*) and at this time a fluid level was observed in the left pleural cavity.

A left thoracotomy was done and approximately 500 cc of gastric material was removed from the pleural cavity and mediastinum. A 6 cm. longitudinal muscular tear was noted in the lower left posterior lateral wall of the esophagus and a 4 cm. mucosal tear was present at this location also. Examination of the esophageal wall at the site of rupture revealed no gross evidence of pre-existing disease. The tear was repaired and the chest was closed with two drainage tubes in place connected to suction.

During the postoperative period the patient was maintained on continuous gastric suction and intravenous fluids and antibiotics. Clear liquids by mouth were begun on the eighth postoperative day and on the tenth

* Department of Surgery, Section of Neurological Surgery, University of Kansas Medical Center, Kansas City, Kansas.

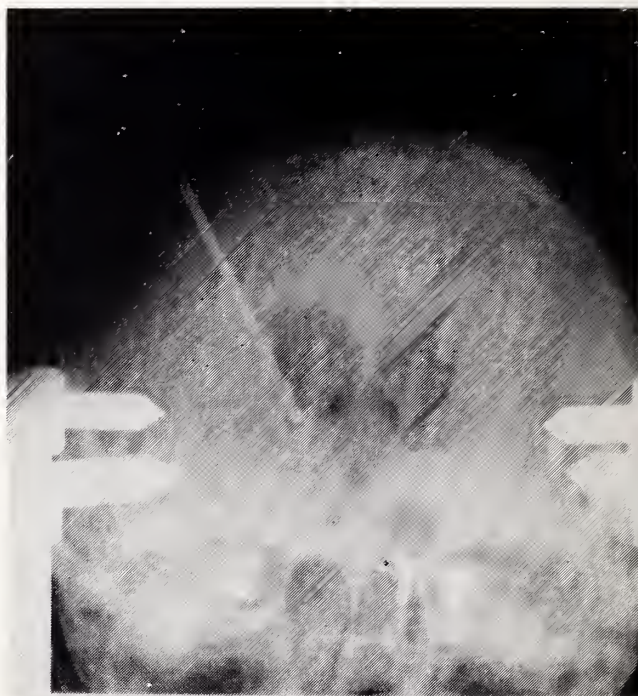
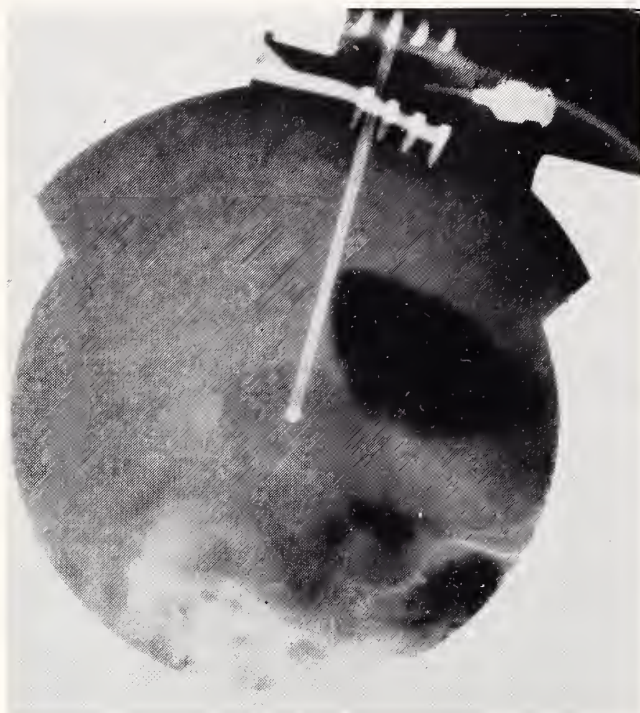


Figure 1. Lateral and anteroposterior views of ventriculogram during right thalamotomy showing probe position.

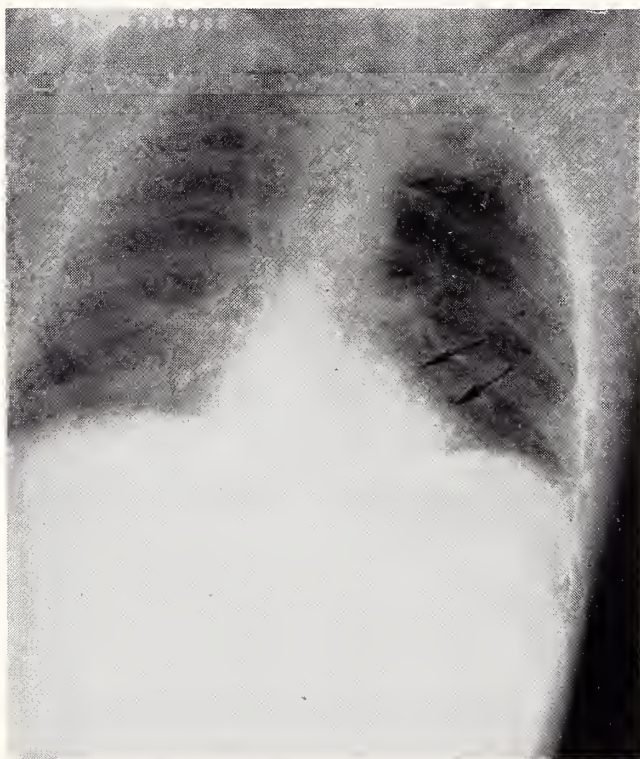


Figure 2. Anteroposterior chest film taken one hour following esophageal rupture showing mediastinal emphysema line (arrows).



Figure 3. Repeat anteroposterior chest film taken three hours following esophageal rupture showing left hydropneumothorax.

postoperative day the chest tubes were removed. The remainder of the postoperative course was uneventful and on June 2, 1964, the patient was discharged to his home.

Comment

Gastrointestinal complications are common in patients with intracranial lesions or following intracranial operative procedures. Cushing concluded that lesions anywhere in the intracranial course of the fiber tracts from anterior hypothalamus to vagal centers are prone to cause gastrointestinal erosions, perforations, or ulcers. A less well recognized gastrointestinal complication of intracranial lesions is rupture of the esophagus. Rokitsansky, in 1841, first reported esophageal rupture in patients with hypothalamic tumors. A review of 1,590 autopsies by Maciver *et al.* produced 19 cases of esophageal rupture. Of these, 17 were associated with lesions of the central nervous system. Spontaneous rupture of the esophagus following craniotomy has been reported by Fincher and Swanson.

The site of spontaneous esophageal rupture is almost always in the left posterior wall just above the cardio-esophageal junction. An inherent weakness of the esophagus at this point has been demonstrated in experimental studies.^{8, 9} The classical syndrome occurs most commonly in previously healthy males in the fourth and fifth decades of life. The sudden onset of symptoms is heralded by an episode of forceful vomiting occurring on a distended stomach, followed by severe substernal pain, progressive respiratory embarrassment due to mediastinal emphysema, and rapid vascular collapse.¹² Hematemesis is rarely of significance.¹³ Subcutaneous emphysema in the supra-sternal notch and evidence of left hydropneumothorax are diagnostic.

Gastric decompression by nasogastric tube should be instituted as soon as the diagnosis is suspected. The blood pressure should be supported by plasma expander while awaiting typing and cross matching of blood. Emergency thoracotomy with drainage of the hydropneumothorax and repair of the esophageal tear must be done as soon as possible due to the rapid increase in mortality with passage of time.^{4-6, 10, 12}

In the discussion of the pathophysiology and experimental production of esophageal rupture, Mackler has stressed the importance of muscular incoordination during vomiting. During normal vomiting, coordinated reflexes bring forward the larynx and hyoid bone and relax the cricopharyngeal sphincter to give egress from the esophagus. Failure of relaxation of the upper tract due to central nervous system incoordination may lead to excessive esophageal pressures, producing spontaneous rupture.

In the present case, the cause of the patient's vomiting is not known and the relation to his stereotactically placed lesions is speculative. It is postulated that the patient suffered from postoperative gastric retention and vomited. Because of his severe generalized intention tremor and incoordination, the patient may have failed to relax his cricopharyngeal sphincter and with excessively forceful vomiting raised the esophageal pressure above the point of rupture.

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Department of Anesthesiology

(Continued from page 100)

Short Term Courses for Physicians in Practice. These are refresher courses designed to acquaint physicians with the elements of administering a satisfactory anesthetic and are available by arrangement with the Chairman of the Department and the Department of Postgraduate Medical Education.

Courses Offered in Conjunction with Other Departments. The Department of Anesthesiology endeavors to correlate the application of material it can offer in the field of better patient care to the teaching programs of other departments. It is our belief that the specialty is broad enough in scope to provide valuable and useful information for patient care in many fields of medicine.

Immunoglobulins and Immunity

Biology of the Human Immunoglobulins

CHARLES H. KIRKPATRICK, M.D., *Kansas City, Kansas**

THE ANTIBODY ACTIVITY of human serum is found in a group of structurally related proteins known as the immunoglobulins (Ig). Although these molecules are also called "gamma" globulins, their electrophoretic mobilities extend through the gamma, beta and α_2 regions (*Figure 1*). The major advances in our knowledge of the properties of the immunoglobulins that have occurred during recent years include the identification of the structural sub-units, the recognition that certain phases of the antibody response are more characteristic of one Ig species than another, the assignment of various biological roles to specific polypeptide chains, and the recognition of certain hereditary aspects of the structure of these proteins. In addition to continued efforts to add to our understanding of these properties, intensive studies are in progress to determine the processes that control the serum concentration of various immunoglobulins, the regulatory mechanisms of the antibody producing cells, the role of antibodies in the pathogenesis of disease and processes of immunity, and the nature of the defects of various immunological deficiency syndromes.

As our knowledge of these proteins increased a new system of nomenclature was developed. This system, which has been recommended for general use,²³ is compared with the older and perhaps more familiar terms in *Table 1*.

The four classes of immunoglobulins have basic structural units that are similar in that each is composed of two pairs of polypeptide chains connected by disulfide bridges.⁸ The structure of 7S gamma globulin is best understood and a schematic model of this protein is shown in *Figure 2*. The light, or L-chains, have a molecular weight of about 20,000 and are of two antigenic types that have been designated kappa and lambda. The L-chains are common to all four immunoglobulin classes. Approximately two thirds of all immunoglobulin molecules contain two kappa chains and one third contains two lambda chains. Molecules of mixed types have not been recognized. Bence-Jones proteins are free L-chains that are readily filtered into the urine.³

The heavy, or H-chains, have a molecular weight of 55,000 and have unique antigenic properties that permit qualitative and quantitative analysis of the individual immunoglobulin classes. The four heavy chain types have been designated gamma, mu, alpha and delta (*Table 1*). Specific biological functions

The antibody activity of human serum is found in four classes of structurally related proteins. The biological properties of these molecules are believed to be determined largely by the structure of one type of polypeptide chain.

Antibody deficiency syndromes are usually characterized by deficiencies of IgG. The concentrations of IgM and IgA in these patients may be increased, decreased, or normal. Some preliminary observations suggest that changes in immune globulin concentrations may be useful in diagnosis of certain diseases.

The theories of control of gamma globulin synthesis are briefly discussed and a new hypothesis is presented.

such as "fixation" of complement, transfer across the placental membranes, fixation to human or animal skin, and the rate of metabolic turnover, are also believed to be determined by components of the heavy chains.^{8, 34} Antigenic subclasses of IgG H-chains with different biological properties have been recognized recently.³³ Although antibody specificity appears to be determined by the H-chains, the full activity of an antibody molecule is not realized until the H-chains and L-chains are combined. Each combining site presumably involves components of one H-chain and one L-chain.⁸

"Heavy-chain" disease, a syndrome of fever, anemia, leukopenia, and recurrent infections, with enlargement of lymph nodes and the spleen has recently been described.^{13, 24} The isolated γ -heavy chains that are excreted into the urine of these patients differ somewhat from the H-chains that are obtained from chemical splitting of IgG, an observation that may indicate that the immunoglobulins

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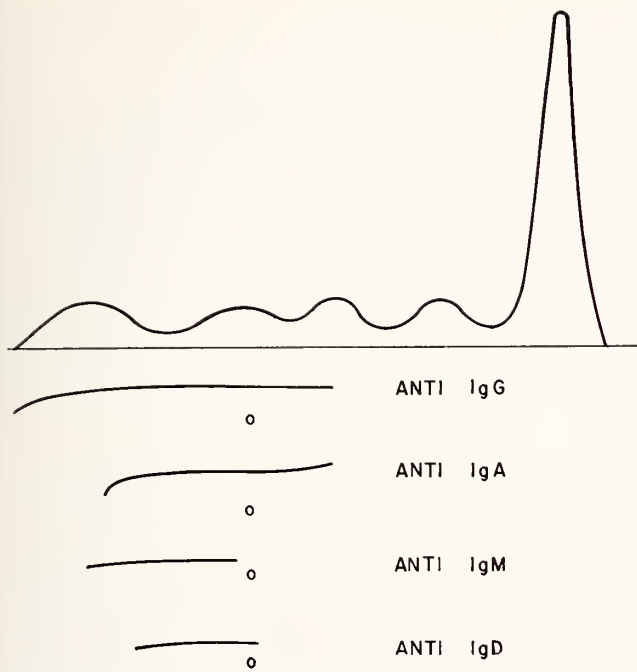


Figure 1. Electrophoretic mobilities of the serum proteins. The top curve shows the peaks of gamma, beta, α_2 and α_1 globulins and albumin (left to right). The lower lines show the migratory properties of the specific immunoglobulins under similar conditions. Note that the immune globulins are found under several peaks and are not limited to the gamma region.

are composed of three pairs of polypeptide chains instead of two.¹²

Certain immunological functions have been associated more closely with one immune globulin class than another.

IgG—About 75 per cent of the serum immunoglobulins occur in this fraction. In addition to most antibodies directed against viral and bacterial antigens, other substances such as the LE cell factor are IgG. Most antibody deficiency syndromes are associated with low levels of IgG. These molecules readily cross the placental membranes and will remain "fixed" at the site of injection into guinea pig skin, a property which permits the detection of small amounts of IgG by passive cutaneous anaphylaxis.

IgM—The macroglobulin antibodies constitute five to ten per cent of the immune globulins. The initial antibody response to many antigens is an IgM protein, but this is subsequently replaced by IgG molecules during the second week after immunization. The antibody to the somatic antigen of *S. typhosa* is always an IgM molecule. Other factors such as cold agglutinins, rheumatoid factors, isoagglutinins, Wasserman and heterophile antibodies are also found in this fraction. IgM probably represents a polymer of several smaller units, but the character of the monomer is currently unknown.⁸

IgA—These molecules also probably exist as 7S

monomers, but they tend to aggregate into larger units.^{8, 34} They comprise 15 to 20 per cent of the serum immunoglobulins. Two recent observations regarding these molecules may have clinical importance. Many of the skin-fixing antibodies (reagins) associated with respiratory allergies reside in this fraction.¹¹ Tomasi and co-workers have reported that a substance immunologically related to IgA is a major immune globulin component of tears, saliva and other secretions and have presented evidence that salivary IgA may be synthesized and secreted by the salivary glands.³⁵ The presence of these antibodies on the surface of mucous membranes may be important in the pathogenesis of the allergic disorders.

South, Wollheim, Warwick, Cooper and Good have described a "transport piece" protein which is apparently added to IgA to permit the material to enter the secretions.³² They have postulated that a defect in the production of the "transport piece" or the immunoglobulin, or a defect in the coupling process would result in a local antibody deficiency state that could predispose the subject to recurrent respiratory tract infections.

Antibodies to insulin,³⁷ thyroglobulin,¹⁵ bacterial products,^{18, 25} and blood group substances²⁰ have also been found in this class.

IgD—This immunoglobulin was recently discovered in the serum of a patient with myeloma,²⁷ and has subsequently been found in small amounts in normal serums.²⁸ Its biological role is currently unknown.

Much of our knowledge of the metabolism and biological activity of the immune globulins derives from studies of subjects with immunological deficiency syndromes or dysgammaglobulinemias. The newborn infant has a significant amount of IgG which was passively acquired from the mother during intra-uterine life. In contrast, IgM is present in the fetus in low concentrations and IgA is not detectable.⁹ It is believed that this selective transport of IgG across the placental membranes is due to a property of the γ H-chains. Although synthesis of new immune globulins begins soon after birth, the rate is less than

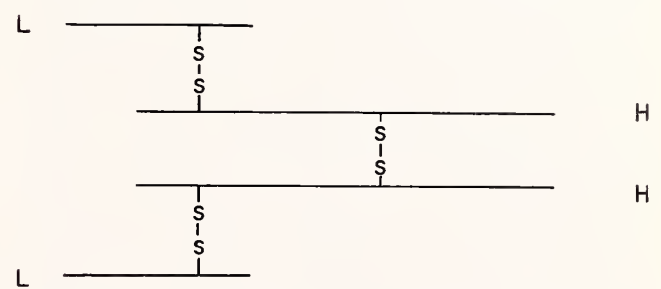


Figure 2. Diagrammatic representation of the IgG molecule. The two L-chains and two H-chains are connected by disulfide bridges.

TABLE 1
NOMENCLATURE AND PROPERTIES OF THE HUMAN IMMUNOGLOBULINS

<i>Recommended Name</i>	<i>Synonyms</i>	<i>L-chain types</i>	<i>H-chain type</i>	<i>Approx. Molec. Wt.</i>	<i>Ave. Conc. in Normal Serum</i> MGM PER 100 ML
IgG (gamma G)	γ_2 , 7S γ γ_{SS} , 6.6S γ	kappa lambda	gamma	150,000	1200
IgM (gamma M)	γ_{1m} , β_{2m} 19S	kappa lambda	mu	900,000	120
IgA (gamma A)	γ_{1a} , β_{2a}	kappa lambda	alpha	150,000	200
IgD (gamma D)	γ_{1j}	kappa lambda	delta	150,000	3

that of catabolism and the concentration of the proteins decreases until the third or fourth month of life. This state of "physiologic" hypogammaglobulinemia is usually unaccompanied by any pathologic effects, but must be considered when evaluating a child of this age for a suspected antibody deficiency syndrome. The possibility that children who develop serious infections during this age may have a unique immunological disorder is under investigation in this laboratory.

The immunoglobulin formation by the infant is believed to be the result of exposure to environmental antigens such as foods, drugs, and microorganisms. Support for this hypothesis comes from studies with germ-free rodents. Axenic animals have low levels of serum immunoglobulins, but develop normal concentrations soon after they are removed from the protected environment.³⁰

In a normal adult human the half-life of IgG is approximately 21 days, however, the rate of metabolism of this immunoglobulin is dependent upon the serum concentration. Subjects with cirrhosis of the liver and hyperglobulinemia have an increased rate of metabolism of gamma globulin.¹⁶ In contrast, subjects with hypogammaglobulinemia because of impaired protein synthesis were observed to have a prolonged T $\frac{1}{2}$ with a mean value of 38 days.³⁶ Studies by Fahey and Robinson have implicated the heavy chains in the control of the metabolic rate.¹⁰ These investigators showed that the half-life of gamma globulin in mice could be shortened by administration of the "F-piece" of mouse gamma myeloma protein. This piece was obtained by enzymatic digestion and reduction of the globulin and contained the H-chains. Other proteins such as albumin, β_{2A} -globulins or gamma macroglobulins were without effect on the turnover rate.

The half-lives of IgA and IgM are 5.0-6.5 and 5.1

days respectively, and the metabolic rates of these proteins are apparently unrelated to their serum concentration.^{2, 31} Several observations suggest that the concentration and synthetic rate of IgM is influenced by the presence of IgG. Rabbits that were treated with 6-mercaptopurine during a course of immunization with a foreign protein produced only 19S antibody.²⁹ Injection of 7S antibody from a rabbit that was similarly immunized but not treated with the purine analogue caused a prompt decrease in the level of 19S globulin. In human subjects with dysgammaglobulinemias and high serum concentrations of IgM, a decrease in the IgM level has been noted during treatment with pooled gamma globulin.^{1, 19}

The development of techniques for assay of individual immune globulins has permitted studies of the relationships of the serum concentrations of these proteins to human diseases. The dysgammaglobulinemias and hypogammaglobulinemias have been recognized as a spectrum of disorders with diverse patterns of serum globulin concentrations. The severe syndromes of antibody deficiency are usually characterized by low concentrations of IgG. In contrast, the absence of IgA has been noted in healthy subjects,^{21, 26} and with the exception of ataxia-telangiectasia,⁹ is not associated with clinical antibody deficiency. The isolated absence of IgM has not been described.

Although the pathogenic mechanisms of these disorders are not known, several tentative explanations have been offered. One theory suggests that the synthesis of "gamma" globulins may be analogous to human hemoglobins.¹⁴ These molecules are similar to immunoglobulins in that they are composed of two pairs of polypeptide chains. The alpha chains are common to all "normal" hemoglobins, but the beta, gamma and delta chains are unique to hemoglobins A, F and A₂ respectively. A syndrome of deficiency

of all immunoglobulins would result from defective synthesis of either L-chains or all four types of H-chains. Hypoglobulinemias involving a single Ig could result from impaired production of a single type of H-chain. Support of this hypothesis comes from the observation that subjects with low levels of one immune globulin will often have unusually high concentrations of another Ig.^{1, 21} An analogous situation has been observed in β -thalassemia, a hemoglobinopathy with impaired synthesis of β chains. These patients are deficient in hemoglobin A but often have supranormal levels of hemoglobins F or A₂.

The sex-linked hypogammaglobulinemia of males is presumably due to defective synthesis of all classes of immunoglobulins. Because certain genetic markers on the H- and L-chains of IgG are known to be inherited as autosomal codominants,⁷ the role of the X-chromosome is unclear. It is possible that a product of this chromosome exerts a repressor or other controller function on the autosome involved in immunoglobulin synthesis, but there is no evidence for this in other mammalian genetic systems. An alternative hypothesis suggests that the product of the X-chromosome acts as a substrate for the product (enzyme) of the autosome and permits cellular differentiation and the expression of the potential to synthesize antibody molecules. A similar process has been suggested for the expression of antigenicity of erythrocytes and secretor status in subjects with "Bombay" blood groups. Erythrocytes from these patients appear to be group O because they are not agglutinated by anti-A or anti-B. The failure of the cells to react with anti-H and the studies of blood groups of family members indicate that these subjects are group A or B, but the antigens are not expressed on the erythrocyte or in the saliva. Ceppellini has suggested that these patients have a metabolic block at the pre-H level which results in a deficiency of substrate for the genes that control synthesis of salivary and erythrocytic H.⁴

The role of the specific immunoglobulins in diseases characterized by hyperglobulinemia is less clear. In a review of 86 serums with abnormally elevated gamma globulin concentrations, Claman and Merrill concluded that no patterns of immunoglobulin levels were characteristic of any particular disease.⁶ In their study, elevation of IgA was the most frequent single abnormality and an elevation of both IgA and IgG was the most common dual increase. In both groups the majority of changes were in patients with chronic disorders of diverse nature such as rheumatoid arthritis, "liver disease" and collagen disease. In a study by McKelvey and Fahey several unique changes were observed.²² The patients with Laennec's cirrhosis had an increase in IgG and IgA, but those with biliary

cirrhosis characteristically had only an elevation of IgM, and subjects with hepatoma had low concentrations of IgM. Patients with acute viral hepatitis have been reported to have an increase in all serum immunoglobulins.¹⁷ Intriguing changes were also noted in subjects with infectious diseases. Coccidioidomycosis was associated with increased serum IgG and IgA, and with Cryptococcosis, a decrease in these two immunoglobulins was observed. Among the subjects with neoplasms of the lymphoreticular system, chronic lymphocytic leukemia was accompanied by a decrease in all immunoglobulins that was most marked with IgM. Low levels of three immunoglobulins have been reported in subjects with chronic renal insufficiency.⁵

Although the mechanisms that lead to these changes are probably diverse and currently poorly understood, these observations provide leads for further studies. The value of these data in clinical diagnosis will then become apparent.

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Hemolytic Disease

A Changing Clinical and Immunological Problem as Reflected by a Review of Ten Years of Experience

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IN 1938, LANSTEINER AND WIENER described the Rh₀ Factor and subsequently indicated the factor as a cause of hemolytic transfusion reactions where there was ABO compatibility between the donor and the recipient. Levine and Stetson about the same time hypothesized the passage of fetal cells across the placenta to the mother with subsequent isoimmunization and return to the fetal circulation of the antibody as a possible cause for erythroblastosis. In 1944, Hallbrecht pointed out that jaundice in the first 24 hours of life may frequently be due to ABO incompatibility between the mother and child, especially with an O mother and A child or B child. These facts have been established over the years based on clinical experience and finally by the demonstration of fetal cells in the mother's circulation by acid elution or fluorescent antibody techniques. Cohen *et al.* have observed the incidence of fetal cells in immediate post partum mother's circulation of 50 per cent, when there was ABO compatibility between mother and fetus. If there was ABO incompatibility between mother and fetus, they observed an incidence of 20 per cent of fetal cells in the mother's circulation.

Questionable Dogma in Clinical Practice

Based on the above facts there has developed the following questionable dogma in clinical practice:

1. Since Rh₀ is the most potent antigen of all blood factors and is the most common cause of erythroblastosis, there is necessity to only group and type the mother in prenatal screening.
2. If the mother is Rh positive, there need be no further concern of hemolytic disease.
3. If the mother is Rh negative, there is need to group and type the father to rule out the possibility of hemolytic disease.
4. If the father is negative for the Rh factor, there is no need for further concern, but if positive, one must be aware of the possibility of Rh sensitization with the second or subsequent pregnancies.
5. Although ABO incompatibility is quite common

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between mother and child, it is a mild disease and can usually be handled by observing for clinical jaundice or following the microbilirubins in the first 24 to 48 hours of life.

6. As a standing policy you can always exchange transfuse a child with low titer O negative blood.

Since 1958, the University of Kansas Medical Center has screened all recipients and prenatal sera for

Hemolytic disease of the newborn is a changing immunohematological problem and clinical problem that requires the team work of the obstetrician, clinical pathologist and the pediatrician.

irregular antibodies in addition to the grouping and Rh typing. Experience with routine antibody screening seems to indicate that the above dogmas should be challenged. A review of the past ten years of experience with hemolytic disease of the newborn was undertaken to prove or disprove this point.

Irregular Antibody Screening

In *Table 1*, the results of routine screening in 1964 are given. It is evident the obstetric population is three times at risk in regard to specific antibodies present in their circulation in contrast to the general recipient population (6.5 per cent vs. 2.2 per cent). Significantly about 1.5 per cent of the obstetric population have two or more antibodies in their circulation; thus, decreasing the possibility of finding compatible blood for the mother or for exchange of the infant. The most common antibody observed is to the Lewis system which can be troublesome in finding compatible blood for the mother, but probably is not involved as a cause of hemolytic disease. Although the antibodies to the Rh₀ factor is the most common antibody in the obstetric population, 72 per cent of all antibodies found are outside of the Rh-hr system. Another significant fact is that 66 per cent of the antibodies found in the obstetric population were in Rh positive women. The Rh positive woman is at

TABLE 1
SUMMARY OF ANTIBODY SCREENING—1964

	Gen. Recip. Pop.	OB Pop.
No. screen	4,330	2,257
Per cent spec. antb. ident.	2.2	6.5
Per cent 2 or more antb.	0.5	1.5
	% of	% of
Specific Antb. Frequency	Total Found	Total Found
Anti-Rh ₀ or with other antibody	24.2	24.7
Anti-c or with other antb.	3.2	1.4
Other Rh-hr antb. ...	10.5	2.0
Antbs. outside Rh-hr ..	62.1	71.9
Lewis	31.6	59.6
P	11.6	3.4
Kell	7.4	2.7
Antb. in Rh ₀ positive women		66.5
Antb. in Rh ₀ negative women		33.6

risk in case she has obstetric bleeding, as well as the infant if he needs exchange transfusion.

Hemolytic Disease of Newborn Reviewed

Table 2 gives a breakdown of the hemolytic disease of newborn charts reviewed from 1955, through the first six months of 1965. As expected, the majority of cases are due to anti-Rh₀ or ABO incompatibility. Significantly though, about six per cent of the cases are due to the presence of anti-Rh₀ plus antibodies to other factors on the red cell surface, and 16 per cent due to causes not immunological in nature. An attempt to classify these other causes is given in Table 3, and indicates the difficulties in differential diagnosis of hemolytic disease of the newborn.

In Table 4, a breakdown is given of the antibodies involved in the proven cases of hemolytic disease (210 cases). In the last five years there has been an increasing observation of the ABO incompatibility with a decreasing incidence of cases due to anti-Rh₀. Likewise, there has been an increase in cases where more than one antibody has been involved or antibodies outside the Rh and ABO systems have been involved.

Table 5 is the pattern of hemolytic disease in newborn cases. In general, when anti-Rh₀ is involved, the direct Coombs is usually positive and has a strong reaction, the bilirubin peaks within the first few days of life, and 60 per cent of the cases required exchange transfusion. The higher anti-Rh₀ titer, the more likely an exchange will be necessary. In contrast, in the

TABLE 2
ANAYLSIS OF HEMOLYTIC DISEASE OF NEWBORN CHARTS REVIEWED 1955-1965

Year	Total No. of Deliveries	Total No. Studied		Anti-D	ABO Incompatibility		Other Specific Antibodies	Other Causes
		BORN	KUMC	TSF. TO KUMC	CONFIRMED	SUSPECTED		
1955	1,767	11	7	10	3	3	1. Anti D + C	1
1956	1,782	20	11	15	9	3		4
1957	1,788	16	9	11	8	1		5
1958	1,856	12	4	8	7	1		
1959	1,973	14	5	10	5	1	1. Anti D + C	2
1960	2,026	19	2	5	9	4	1. Anti \bar{C} + E	2
1961	2,103	29	7	11	5	7		13
1962	2,215	22	3	7	8	2		8
1963	2,274	9	10	7	7	1	1. Two Anti D + C	2
1964	2,118	19	10	11	7	3	1. Anti \bar{C} 2. Anti \bar{C} + E 3. Anti Kell + Fy ^a 4. Anti D + C 5. Anti e (e ^s) 1. Two Anti D + C 2. Anti D + E 3. Anti E	
1965 (6 mos.)	833	11	—	2	3	2		
Totals	20,735	182	68	97	71	28	14 (6%)	40 (16%)

TABLE 3
EVALUATION OF ETIOLOGY IN OTHER
CAUSES OF HDN

<i>Physiological Bilirubinemia</i> —(ABO or Rh ₀ incompatibility not possible. F.T.—bilirubin peak less than 13.5 mg per cent by day-3, Premature, bilirubin peak less than 15 mg per cent by day -7)	
	No. Pts.
Full term infants	9
Prematures	2
<i>Hyperbilirubinemia of Newborn</i> (No ABO or Rh possible and/or DC Negative and Antibody screen negative)	
Full term no Exchange Tsf Needed	1
Premature no Exchange Tsf Needed (1-Diabetic Mother)	2
Full term, Exchange Tsf Needed (1 with Sepsis, 1 with Vitamin K excess)	13
Premature, Exchange Tsf Needed (1 with Sepsis & Expired, 1 with Cavernous Hemangioma)	10
<i>Miscellaneous</i>	
Congenital Spherocytic Anemia & ABO (Ex. Tsf. 3x's)	1
Idiopathic Thrombocytopenia (Ex. Tsf 1x)	1
Anemia Secondary to Hematomas of Scalp and Arm (Tsf 2x's)	1

ABO cases about 46 per cent had direct Coombs positive but weak reactions, bilirubins peaked within three to six days in the majority of cases. Forty-three per cent of the cases required exchange transfusions with eight per cent requiring exchange transfusions two times or more. Although the majority of the ABO

compatibilities was a situation of an O mother versus an A or B infant, ten per cent of the cases were A or B mother versus a B, A or AB infant. It would appear that ABO incompatibility is not as mild a disease as originally indicated.

The pattern of the Rh cases verifies the fact that the majority of the antibodies found are a situation where the ABO group of the mother is compatible with that of the child allowing the fetal cells to survive longer in the mother's circulation, providing more opportunity for stimulation of isoimmunization.

In this series there were two cases involving anti-E, which generally has not been accepted as a likely cause for hemolytic disease in the newborn. The case of K. S. had a direct Coombs of four plus with the eluate of the cord cells having activity of anti-E and anti-c. The child needed one exchange transfusion. The case of E. G. had a direct Coombs of two plus. The child was clinically jaundiced, but no exchange transfusion was necessary.

In case of M. C., the mother's circulation contained an anti-K and Fy^a. The latter antibody is also considered to be an unlikely cause of hemolytic disease of the newborn. The direct Coombs was four plus and the cord cells were positive for Kell and Duffy^a antigens. One exchange transfusion was needed. The exchange was carried out with O positive blood, which was the group and type of the mother and infant.

In two cases the mother's circulation contained antibodies to the Lewis system and required exchange transfusion for peaking bilirubins, but there was no evidence of the Lewis antibody in the cord sera, and the direct Coombs tests were negative on the cord cells. No agglutination was evident when the mother's sera was exposed to the cord cells. The cause for the hemolytic process remains unexplained.

TABLE 4
ERYTHROBLASTOSIS FETALIS (210 CASES)
ANTIBODIES OBSERVED

Antibody	Total 1955-65		Total 1955-59		Total 1960-65	
	NO.	%	NO.	%	NO.	%
ABO	99	47.2	41	42	58	51
Anti-D	97	46.2	56	58	49	43
Anti-D and C	7	3.3				
Anti-D and E	1	0.5				
Anti-c̄ and E	2	0.9	0	0	3	3.0
Anti-c̄	1	0.5				
Anti-E	1	0.5				
Anti-e ^s	1	0.5	0	0	1	1.0
Anti-K + Fy ^a	1	0.5	0	0	1	1.0
Other than Rh ₀ and ABO	6	2.9	0	0	6	6.0

TABLE 5
PATTERN OF HEMOLYTIC DISEASE OF NEWBORN CASES

	ABO-99 Cases		Rh 105 Cases	
	NO.	%	NO.	%
Cord: D.C. -0 or not done	53	53	3 (not done)	2
1+	30	30	4	4
2+	13	13	5	5
3+	3	3	7	7
4+	0	0	86	82
Total +	46	46	102	98
Immune Anti-A or B	51	51	ABO Compat.	92
DC & Immune Antb Neg	32	32	ABO Incomp.	8
			<i>Titer</i>	<i>No. % Ex. Tx.</i>
Mo O vs A Infant	53	53	not done	32 65
Mo O vs B Infant	34	36	1/4-1/16	13 46
Mo A vs B Infant	4	4	1/32-1/64	13 61
Mo B vs A Infant	4	4	1/128	15 83
Mo A vs AB Infant	2	2	1/256	14 78
Mo B vs AB Infant	2	2	>1/500	18 78
Hb > 16 gm/100 ml	64	64	31	30
Hb < 16 gm/100 ml	35	35	74	70
Ex Tsf 1x	36	36	52	50
Ex Tsf 2x	7	7	20	19
Ex Tsf 3x's & >	1	1	5	5
Bilirubin Peak Not Done	0	0	9	9
day 0-2	15	15	63	60
day 3-4	53	53	28	27
day 5-6	27	27	3	2.5
day 7 on	4	4	2	1.5

It should be noted in *Table 4*, that there are four cases where the routine use of low titer O negative blood for exchange would lead to incompatible hemolytic transfusion reaction in the baby. In addition in the case of M. C., above, where anti-Kell and Duffy were involved the finding of a compatible blood would have been more difficult if limited to O negative low titer blood than utilizing O positive blood which was the group and type of mother and infant. In 1960 Busch *et al.* reported that less than five per cent of 1,000 consecutive units of O blood had anti-A or -B titers less than 1 to 100 or lacked hemolysins. Currently, the Standards for Blood Transfusion Service of the American Association of Blood Banks requires that universal donor O blood should have anti-A or -B titers of 1 to 50 or less in a saline system, and less than 1 to 20 in a system designed to detect immune anti-A or anti-B. It is very likely less than four per cent of all group O negative blood will meet this criteria. Accordingly, a wiser policy for exchange transfusion is to exchange with group and type specific blood compatible with the infant's

ABO group and compatible with the antibodies present in the mother's circulation.

Conclusions

1. All prenatal sera should be screened for irregular antibodies, preferably at week 20 and repeated at the 34th week.

2. If an irregular antibody is found, it should be identified.

3. The father's cells should be studied to determine whether he is homozygous or heterozygous for the antibody found. This will allow for genetic consultation with the family.

4. Selection of blood for exchange transfusions should be on the basis of ABO group compatible with the child's group and type and compatible with the antibodies present in the mother's circulation.

5. Not all clinically evident cases of hemolytic disease of the newborn have an immunological basis. Inborn errors of metabolism of erythrocytes, medications given to mother or child, prematurity of child, abnormal hemoglobins, sepsis and other unknown factors must be considered.

The Painful Shoulder

The Scapulocostal Syndrome in Shoulder Pain

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THE PAINFUL SHOULDER has been the subject of hundreds of publications and texts presenting many etiologic theories of and therapeutic approaches to this problem. In this day when the term, "broad spectrum," is popularly applied to therapeutic procedures, one may be tempted to speculate facetiously if we do not also have a broad spectrum disease, the painful shoulder. So much of the literature is concerned with compressive or reflex neural or neurovascular causes that a very common cause for a painful shoulder, the scapulocostal syndrome, is frequently overlooked. This syndrome has the advantage of easy diagnosis with simple testing techniques and is responsive to relatively simple treatment procedures.

The scapulocostal syndrome is not a new entity. Literature of the turn of the century referred to the presence of adventitious bursae at the medial angle of the scapula in cases of shoulder pain. Apparently, however, the syndrome was not referred to by this name until 1950.³ Further aspects of diagnosis and treatment were clarified by Russek in 1952.⁴ Since this time, the literature had continued to reflect primarily the specialty interest of the author, and only rarely does one see the scapulocostal syndrome named in the differential diagnostic causes for shoulder pain. In the opinion of some,^{3, 4} this syndrome is the basis for one third to one half of all cases of shoulder pain.

Symptomatology

Superficially, there may be little to distinguish the scapulocostal syndrome from other causes for shoulder pain. The patient is usually in the third or fourth decade of life. The side of involvement usually corresponds with that of hand dominance. A history of trauma of some type involving the upper extremity or neck can be obtained in approximately one third of the cases. Postural or other mechanical errors which place a strain on the musculature supporting the shoulder girdle can be detected in approximately one third of the cases. No obvious initiating cause can be found in the remaining one third.

The posterior cervical musculature is frequently

tender both spontaneously and on use or pressure. Pain in the general region of the insertion of the deltoid muscle and along the posterior aspect of the arm is common. Less frequently, intercostal radiation at the T-4,5 level has given rise to the erroneous con-

The scapulocostal syndrome is a common cause for pain in the neck, shoulder girdle and arm.

The occurrence of this syndrome can be determined by simple procedures which should be part of the diagnostic effort in every case of shoulder pain.

The treatment objective is to break the reflex mechanism by the local infiltration of the trigger area with anesthetic agents, following which corrective exercises, where such are indicated, may be given.

sideration of angina pectoris when the pain occurs on the left side. The pain is usually worse at night, when the individual is fatigued, or when activities involve lifting or pushing. The individual usually denies any periods of complete freedom from pain. Patients frequently do not spontaneously complain of scapular pain at all.

Physical Findings

The objective signs accompanying this syndrome frequently are confusing. The most frequent finding, in our series, is that of limitation of gleno-humeral motion, although occasionally motion here is entirely normal. There may be tenderness over the medial epicondyle of the humerus, or paresthesias of the hand, particularly in the fourth and fifth fingers, without bona fide neurologic findings. X-ray findings of the neck, scapula, shoulder, or arm are usually non-contributory or reveal only incidental information.

All of the above symptoms and findings are compatible with many other conditions which affect the neck or shoulder. However, the sine qua non of the scapulocostal syndrome is the demonstration of a

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circumscribed area of tenderness at the upper vertebral border of the scapula, pressure over which produces pain referred to the shoulder or arm or, less frequently, to the midcervical region on that side posteriorly. In order to demonstrate this area, it is essential that the scapula be abducted as fully as possible, either by having the patient reach across his chest and place the hand on the opposite shoulder, or having him strongly internally rotate the adducted arm. The examiner then palpates with his thumb at or "under" the vertebral border of the scapula, especially in the upper third. Such pressure is painful both locally and with radiation to the shoulder and arm. The latter is essential for this diagnosis. The patient is frequently surprised at the local discomfort, as he may be entirely unaware of pain at this particular point. Unless a specific search is made for this trigger area, it is frequently missed for this reason.

Etiology

As with many causes for shoulder pain, the concept of the scapulocostal syndrome is usually postulated on the basis of response to treatment procedures. The sharp and consistent localization of pain on pressure corresponds to the insertions of the rhomboids and levator scapulae muscles. In some patients, the point of maximal sensitivity to pressure is less along the tendinous aponeurotic insertion of these muscles than slightly under the vertebral edge of the scapula toward its anterior surface. An adventitious bursa has been reported at this point in at least 12 per cent of routine anatomical dissections,³ although thoracic surgeons, in the course of routine scapulo-thoracic procedures, have rarely noted the presence of a bursa in this area.⁴ When present, however, an inflamed bursa at this point may explain the local tenderness beneath the usual insertion of the rhomboids or levator scapulae. Acute sprain or allied injury, chronic strain from postural errors or occupational positions, the muscle imbalances caused by amputations, rheumatoid arthritis or hemiplegia all may demonstrate a common neurovascular reaction at this point as a "tendinitis" or "bursitis." Afferent pain impulses from this area ascend centrally to the C-5 level of the cervical cord, and, as with any neural stimulus which continues, irradiates beyond its normal confines, so that pain is interpreted centrally as coming from the C-5 segmental level of pain receptors in general. The muscles which have their afferent nerve supply directed toward this cord segment are: levator scapulae, rhomboids, spinati, subscapularis, deltoid, teres major and minor, biceps, and occasionally the brachioradialis.¹ It should be obvious, therefore, that any mechanism or occurrence that produces a

nociceptive feedback into this segment of the cord will initiate referral of pain and movement inhibition to the muscles supplied by this segment. The scapulocostal syndrome is but one such mechanism, but it should not be overlooked.

In the opinion of the authors, argument over the exact term to apply to the above condition is far less important than being aware of its occurrence, having an understanding of the mechanisms by which shoulder pain may arise, and having a knowledge of the procedures necessary to correct them.

Incidence

As we became more aware of the relatively clear-cut nature of this syndrome, either alone or in occurrence with other conditions involving the neck or upper extremity, a careful examination of all outpatients presenting a painful shoulder or neck was made. During the six-month period from March, 1965, 32 patients were seen in whom a clear-cut diagnosis of the scapulocostal syndrome could be made. The duration of the disability in this group ranged from two days to more than ten years. All except the very acute cases had been treated unsuccessfully with steroids, analgesics of several types, physical therapy and manipulations; the acute cases had not been treated prior to being seen. While this is not a large series, it is indicative of a relatively common condition.

Treatment

The ordinary therapeutic approaches have been quite ineffective. The use of diathermy, cryotherapy, massage, exercises of various types, rest, local injection of steroids into the shoulder, oral analgesics or drugs to depress neuromuscular irritability have been unsuccessful for the most part. Such measures may be of assistance in maintaining function in the involved extremity, but seem to have had no effect on the locally sensitive area on the vertebral border of the scapula.

The most effective treatment for this group has consisted of the careful localization of the point of maximal sensitivity to pressure at or beneath the vertebral border of the scapula, the infiltration of this region with a local anesthetic, and concluding with the proper exercises indicated in the individual case. The importance of the latter is to be emphasized, as such exercises cannot normally be performed because of pain. With the local analgesia thus achieved, less pain is produced on activity, and, therefore, more normal movement patterns are achieved. The local anesthetic used may be of importance. Usually, 3-5 cc. of one per cent lidocaine were employed. More recently, to 3 cc. of one per cent lidocaine, 1-3 cc. of

three per cent aqueous phenol has been added. The latter solution is known to have a relatively specific selectivity for small diameter nerve fibers, of which pain fibers are a prominent example, and the reversible neurolysis achieved by it gives much longer pain relief than is usually obtained with conventional local anesthetics.² The objective of such treatment is to break the reflex mechanism which persists so long as the afferent pain-invoking stimuli are permitted to excite the mechanism. Once this has been achieved, the initiating element of this circuit has been interrupted; the persistence of such interruption depends on reinjection as needed, and, especially, on correction of the occupational, postural, or other mechanical factors which place a strain on the shoulder-girdle suspending musculature.

Results

Of the 32 patients, 14 obtained pain relief with one injection. The greatest number of injections given any one patient was four, and only one patient required this number. All patients experienced diminution in the symptom of pain from this procedure alone. Since this group has been followed for such a short time, no long-range evaluation has been attempted in this study; the improvement in the presenting symptoms, however, tends to persist.

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CORRECTION

On page 72 of the February, 1966, issue, the name of one of the authors was misspelled. The co-author of the paper "Molecular Pathology" is Leo P. Cawley, M.D., of Wichita.

Rare Muscle Disease

Acute Idiopathic Rhabdomyolysis With Renal Tubular Necrosis

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ACUTE IDIOPATHIC RHABDOMYOLYSIS (idiopathic paroxysmal myoglobinuria) is rare enough that sporadic cases may go unrecognized unless the physician has a high degree of suspicion. Although the disease is rare its simple presentation with painful, weak muscles and dark urine, and its frequent termination in acute renal failure make early diagnosis imperative.

The disease process is characterized by lysis of striated muscles with release of myoglobin into the blood and subsequent myoglobinuria.

History is the differentiating point in secondary rhabdomyolysis with myoglobinuria. This entity (Table 1) may occur with arterial occlusion, crush injuries, high-voltage electrical shock, high fever, and following poisoning with alcohol, cocaine, turpentine, barbiturates, and carbon monoxide. Haff's disease¹ is an epidemic form of myoglobinuria, possibly infectious or toxic, which occurred along the coasts of the Baltic Sea and some inland lakes of Sweden. H. A. Reid of Malasia has described rhabdomyolysis with myoglobinuria following sea-snake bites. It has also been found following excessive exercise as in the Squat Jump Syndrome described by Howenstine. Exclusion of the above entities leaves the presumptive diagnosis of idiopathic rhabdomyolysis, the etiology of which is unknown.

A similar picture in McArdle's Syndrome^{10, 12} is associated with an absence of muscle phosphorylase resulting in muscle degeneration due to abnormal glycogenolysis. In this disorder, ischemic muscle exercise results in a decrease in the lactate and pyruvate levels of the blood. It has been postulated that the myoglobinuria seen in work horses after a weekend of heavy feeding is a metabolic disorder.³ In humans

exercise seems to be a common precipitating factor, but the etiology remains obscure.

Approximately 60 cases of acute idiopathic rhab-

The case histories of two patients having rhabdomyolysis with myoglobinuria are reported. The differential diagnosis and diagnostic techniques are reviewed. Attention is drawn to the necessity for early collection of the urine for diagnostic procedures.

domyolysis with an over-all mortality of 22 per cent⁴ have been reported. Thirty-one per cent of all cases have had renal failure of some degree and eight per cent have died as a result of renal failure.^{5, 13}

We wish to report two cases of idiopathic rhabdomyolysis with severe renal failure.

TABLE 1

CLASSIFICATION OF RHABDOMYOLYSIS

- Secondary*
- I. Arterial Occlusion
 - II. Crush Injuries
 - III. High Voltage Electrical Shock
 - IV. Fever
 - V. Toxins
 - alcohol intoxication
 - colchicine intoxication
 - turpentine intoxication
 - barbiturate intoxication
 - carbon monoxide
 - Haff's disease
 - sea snake bite
 - VI. Excessive Exercise: Squat Jump Syndrome
- Primary*
- I. Metabolic: Equine Myoglobinuria
 - II. Idiopathic Rhabdomyolysis

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Case Reports

CASE 1

On February 3, 1963, a 29-year-old white housewife carried a young child during an evening shopping trip. The following morning she awoke with diffuse muscular pain and tenderness. Two days later she noticed dark urine and increasing muscular tenderness. She had had no previous similar episodes and the family history was negative for any type of muscle disease. On admission to another hospital the physical examination, including neurological examination, was normal with the exception of muscle tenderness of the degree that palpation of most skeletal muscles produced exquisite pain. No red blood cells were seen in her smoky, brown urine. On the fifth day of her illness, she had severe muscular weakness, was areflexic, and unable to walk or sit. A gastrocnemius muscle biopsy revealed normal muscle tissue. The blood urea nitrogen was 34 mg/100 ml and serum potassium was 8.3 mEq/Liter. Because of the elevated BUN and potassium, the patient was transferred to the University of Kansas Medical Center on February 8, 1963. She was still producing brown urine which was benzidine-positive without red blood cells, and negative for porphyrins and for myoglobin by the ammonium sulfate method.² The urine was then examined with a Beckman DU Spectrophotometer. Typical absorption bands for oxymyoglobin were seen at 581, 540 and 418 microns and for metmyoglobin at 633 and 500 microns (*Figure 1*).

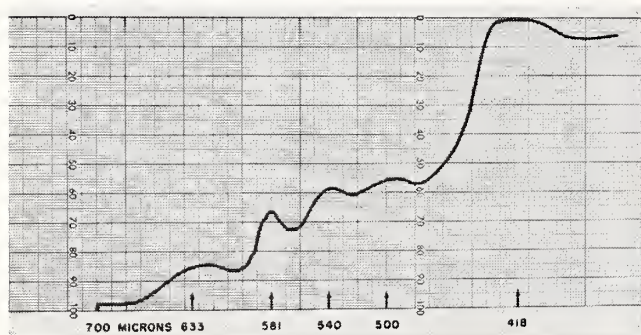


Figure 1. Case 1. Spectrophotometry of the urine showing absorption bands of oxymyoglobin at 581, 540 and 418 microns and of metmyoglobin at 633 and 500 microns.

A hemoglobin control was run with absorption bands at 576 and 542 microns. The presence of myoglobin in the patient's urine was substantiated by electrophoresis. Cellulose acetate strips showed migration of the myoglobin control at one half the rate of the hemoglobin control. The material in the patient's urine corresponded to that of the myoglobin (*Figure 2*). On filter paper the same distribution is shown (*Figure 3*). The suspected diagnosis of myoglobinuria

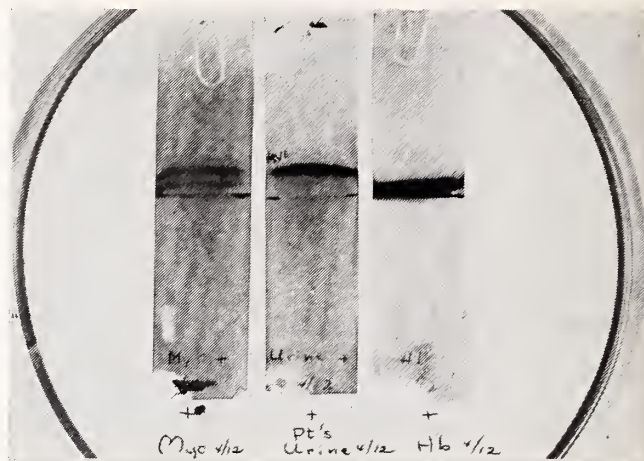


Figure 2. Case 1. Cellulose acetate strip electrophoresis of the urine. From left to right are a myoglobin and hemoglobin control from muscle extract, the patient's urine, and a hemoglobin control.

was thus confirmed. The other significant laboratory findings of this case were albuminuria, a white blood count of 19,750/mm³, a serum glutamic oxalopyruvic transaminase of 1,770 units, urinary creatine of 384 mgm/1,920 cc/24 hours, and creatinine of 891 mgm/1,920 cc/24 hours. On the ninth day of her illness the BUN rose to 195 mg/100 ml despite daily urine volumes of 800-1,400 ml, and peritoneal dialysis was started. By the 15th day of dialysis the BUN had fallen to 33 mg/100 ml and after 18 days dialysis was discontinued. During the period of dialysis, the patient lost her muscle tenderness and regained tendon reflexes and muscle strength.

After the BUN had returned to normal, and toward the end of convalescence, ischemia of the right arm was produced by an inflated blood pressure cuff and the arm exercised to fatigue. Serum lactic acid levels of venous blood were determined before and

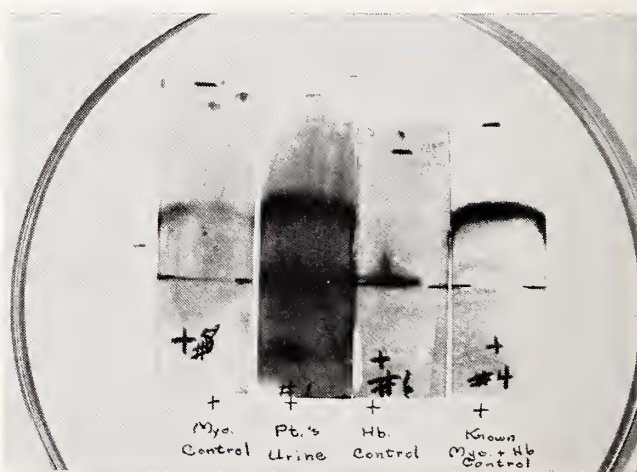


Figure 3. Case 1. Filter paper electrophoresis. From left to right are muscle extract, the patient's urine, hemoglobin, and a mixture of myoglobin and hemoglobin as controls.

after ischemic exercise. There was a normal rise in the post-exercise values which excluded McArdle's Syndrome. Electromyography was also normal. On an outpatient visit fourteen days after discharge the patient's white blood count was 7,140/mm³; BUN, 6 mg per cent; and SGOT, 12. One year following discharge the patient reported no recurrence of her symptoms of dark urine, and stated that she was in good health.

CASE 2

Three weeks prior to admission a 52-year-old white male laborer had the onset of generalized aching, malaise and diarrhea with a temperature of 99.4° F. The tentative diagnosis was influenza and the patient was initially treated with streptomycin. During the subsequent two weeks the patient continued to complain of muscular aching and was treated with penicillin, oxacillin, and then sulfanilamidoisoxazole (Gantanol®). Two days after initiation of sulfanilamidoisoxazole he developed an erythematous rash over his face and body. The sulfanilamidoisoxazole was discontinued and ACTH and cortisone were started. Because of persistent aching the patient was given sodium iodide, salicylate and colchicine intravenously. One week prior to admission he was admitted to another hospital because of anuria for 24 hours.

On transfer to the University of Kansas Medical Center on February 28, 1963, he exhibited generalized edema of the body and severe edema of the face and arms. There was muscular tenderness. Tendon reflexes were present but he was too weak to get out of bed.

His scanty urine was normal in color and negative for red blood cells, hemoglobin and porphyrins. Spectrophotometry of the urine failed to reveal myoglobin absorption bands. Other findings were albuminuria, a white blood count of 21,840 mm³, and a serum glutamic oxalopyruvic transaminase of 272 units.

After an initial improvement in his urinary output he had progressive oliguria and azotemia. On the sixth hospital day the patient's BUN was 168 mg/100 ml and peritoneal dialysis was started. The patient died on the ninth hospital day, and death was attributed to staphylococcal pneumonia and pulmonary edema. Autopsy revealed, on gross examination, irregular, linear masses of light grey muscle intermingling with the more normal dark red muscle. The microscopic examination (*Figure 4*) showed normal and involved muscle, inter- and intracellular edema of the involved skeletal muscle with loss of cross striation, fraying and fragmentation of the sarcolemmal tubes, and in many areas frank necrosis of the sarcoplasm and sarcolemmal tubes. Periodic acid stain and Perl's stain showed no evidence of excessive accumulation of glycogen or iron respectively. There

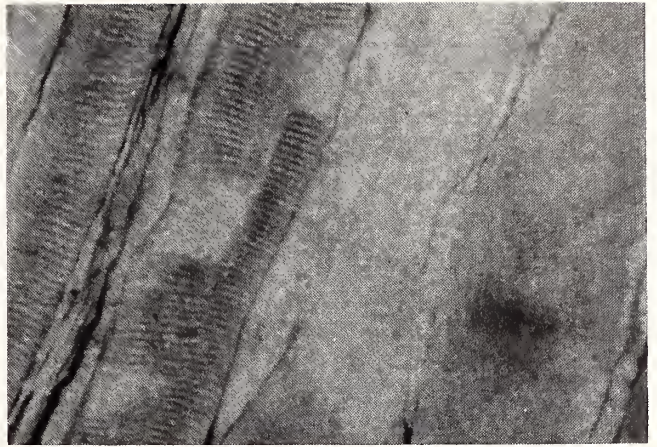


Figure 4. Case 2. Skeletal muscle obtained at autopsy.

was no evidence of vasculitis. There was neither peripheral nerve degeneration or inflammation nor central nervous system abnormality. Sections of the kidneys (*Figure 5*) showed dilatation of the tubules with atrophy and early regeneration of the tubular epithelium compatible with the 16th day of oliguria. Many of the tubules were filled with a somewhat laminated brown material which failed to stain with hemoglobin peroxidase stains. The material was subjected to 2.3 molar ammonium sulfate for 24 hours and then stained with hematoxylin and eosin and showed no decrease in amount, which suggested that the material in the tubules was myoglobin.

Discussion

The differential diagnosis of rhabdomyolysis with myoglobinuria includes the causes of dark urine as well as causes of muscle destruction. Under the former group, acute glomerulonephritis can be excluded because of the presence of red blood cells in the urine of patients with that disease. A negative urinary determination for porphyrins rules out porphyria. Hemoglobinurias, though also presenting with

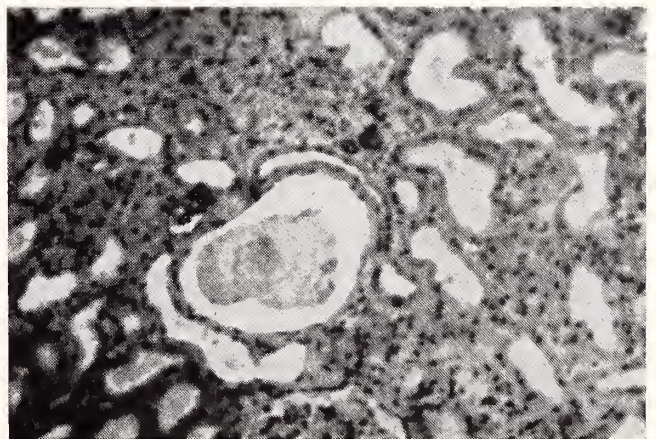


Figure 5. Case 2. Renal tubules showing early regeneration and a myoglobin cast. Autopsy material.

benzidine-positive urine, have pink plasma whereas the plasma in myoglobinuria is normal in color.

The diagnosis of myoglobinuria can be confirmed by a number of techniques. Eighty per cent saturation of the urine with ammonium sulfate has been found to precipitate hemoglobin but not myoglobin.¹³ A pigmented supernatant therefore indicates myoglobinuria. However, in Case 1, as in a case reported by Duma et al., this test resulted in a false negative. Spectroscopic examination of the urine is an accurate determination. Myoglobin absorption bands for oxy-myoglobin are 581-582, 540, and 418 microns; for metmyoglobin, 633-636 and 500 microns; and for carboxymyoglobin, 578-579, 540, and 424 microns.

Electrophoresis gives good separation of hemoglobin and myoglobin. The electrophoretic mobility of myoglobin is one half that of hemoglobin.⁸

Ultracentrifugation of myoglobin (molecular weight of 16,400) yields an S value of 2 in contrast to a value of 4 for hemoglobin (molecular weight 68,000).⁵ Ultrafiltration with a 10-millimicron pore size filters myoglobin but not hemoglobin.⁵ The difference in molecular size of hemoglobin and myoglobin and the observation that hemoglobin is attached to a haptoglobin,⁹ whereas myoglobin is not,⁷ lead to the speculation that myoglobin may be more nephrotoxic than hemoglobin because it is filtered into the tubules in higher concentration.

Elucidation of the correct diagnosis alerts the physician to the possible fatal complications of respiratory or renal failure. The goal of management is support of vital functions during the period necessary for spontaneous recovery. Respiratory embarrassment is treated by artificial respiration. Azotemia and hyperkalemia can be controlled with some form of dialysis as in the cases presented.

In conclusion we would like to emphasize the importance of early collection of the urine in patients suspected of rhabdomyolysis or in patients showing dark urine of undetermined etiology. In the majority of cases the urine is free of myoglobin after the first 24 to 48 hours. Awareness of this entity and knowledge of the confirmatory laboratory procedures may be expected to result in more frequent diagnosis of rhabdomyolysis with myoglobinuria.

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MEDICAL CAREER

Does your son want to study medicine? Or your daughter?

For the aspiring student, a medical career offers many opportunities—private practice, research, teaching, administration, occupational health, school or college health, public health, foreign service, or the armed forces. Each opportunity requires different talents and abilities. Four personal traits, however, are musts, no matter what specialty a medical student chooses.

1. *Intellectual curiosity.* A medical student must expect to be lifelong student. Modern research and the rapid advances of modern medicine continually challenge a physician's intellectual curiosity. As human horizons stretch into space, medical knowledge must expand accordingly.

2. *Concern for people.* Concern for people is the dynamics of medicine. A student must possess a compassion for people that includes understanding of human needs and fears.

3. *Good health.* A medical career, as well as the preparation for it, makes strenuous demands upon a physician. Students must be equipped to withstand the physical and emotional stresses of long working hours and mental pressures. The profession requires good health.

4. *Tenacity.* A medical student must be prepared to devote ten years or more, with minimal income, to formal education. Only a conscientious, tenacious student can meet these educational demands with high scholastic achievement.

Medical school is the first of many challenges in the medical profession. "Physician" is more than a title that one automatically receives after four years of study and training. The title is earned—by meeting the medical challenges in a community, by serving individual patients, and by discharging obligations to the profession.—*AMA Health and Safety Tips.*

Polymyositis

A Review of Seventeen Cases Studied at The University of Kansas Medical Center

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A RENASCENCE OF interest has been accorded in recent years to a disease of muscles, originally described in the late nineteenth century, in which pathological changes are both inflammatory and degenerative, and in which the clinical course is varied. Despite some excellent recent reviews^{1-3, 8, 9} the condition remains considerably less familiar than dermatomyositis which is one, albeit most frequent, of the variations of the disease. The diagnosis "polymyositis" does not appear in the standard diagnostic nomenclature. It is the purpose of the presented paper to record the clinical and laboratory findings in a group of cases with features of polymyositis on muscle biopsy. The particular points of emphasis will be on the clinical features of the "collagen diseases" found in patients with myositic changes in muscle, and the response to adrenal steroid therapy.

Material and Methods

All cases diagnosed as dermatomyositis or polymyositis seen during a period of four years at the University of Kansas Medical Center were carefully reviewed and those verified by degenerative and inflammatory changes in muscle fibers, were included in this study. The two exceptions were cases of children who, although they had no muscle biopsy performed, presented a classical clinical picture of dermatomyositis. In addition to ten cases from KUMC, seven cases from other hospitals, all with clinical and muscle biopsy findings of myositis, were included. No cases were studied, of course, in which "myositis" referred only to an acute painful muscle of traumatic origin or a bacterial infection of muscle.

The cases were studied with regard to their initial symptoms and history, course, and response to steroid medications. Particular attention was given to the presence or absence of muscle pain, involvement of the skin, of the esophagus, and of the joints. We also looked for the presence of other neurological signs. The findings on certain laboratory tests, particularly that group of tests for evaluation of activity some-

times referred to as the "rheumatogram" were studied as well as the presence or absence of lupus erythematosus cells in preparations of blood, and changes in the electrophoretic pattern of blood proteins. Electromyographic findings and findings of muscle biopsy were reviewed.

Clinically, patients with polymyositis fall into two categories—those with manifestations more or less restricted to skeletal muscle, and those with muscle weakness, atrophy and pathological findings of muscle inflammation and degeneration in the context of other "collagen diseases."

It is the purpose of this paper to report the clinical and laboratory findings in a group of patients with characteristics of polymyositis. Particular emphasis is placed on the clinical features of the "collagen diseases" found in patients with myositic changes in muscle, and the response to adrenal steroid therapy.

Results

INITIAL MANIFESTATIONS

Sex, age of patients, and type of onset of the first signs or symptoms referable to the disease complex are seen in *Table 1*. Of these 17 patients, 11 complained of muscular weakness or muscular wasting as the first evidence of the illness. Two of the patients presented skin manifestation initially, one with tightness of skin of the hands, and the second with erythema of the face. Both of these were children. In three adult patients the onset definitely occurred shortly after some type of non-specific upper respiratory infection with fever. Joint pain and swelling occurred either alone or concomitantly with muscular weakness as a presenting symptom in five patients. Although the development of the disease was moderately rapid in some patients, in none was there a rapid

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TABLE 1

Case	Sex	Age	Earliest Symptoms
1	F	10	Weakness of legs, arthralgia.
2	F	11	"Tightening" of skin.
3	M	13	Face rash and swollen painful joints.
4	M	14	Weakness and wasting of leg muscles.
5	F	16	Arthralgia knees and hands. Myalgia.
6	M	16	Weakness of legs and arms.
7	F	43	Weakness of proximal leg muscles.
8	M	43	Weakness of proximal limb muscles.
9	M	46	Arthralgia and neuritis.
10	F	56	Weakness of legs and arms.
11	M	58	Weakness, myalgia, generalized.
12	F	50	Arthralgia and joint swelling.
13	M	63	Weakness of arms.
14	M	65	Weakness, pain in leg muscles.
15	M	65	Dysphagia and muscle weakness.
16	M	76	Weakness of proximal leg muscles.
17	M	57	Weakness and pain proximal leg muscles.

downhill course corresponding to the acute myositis occasionally described in the literature.

Systems Involved

MUSCLE

Aching of the muscles at rest or tenderness to pressure occurred in ten of the 17 patients. Perhaps more worthy of emphasis is the fact that seven of these patients at no time in the course of their disease suffered from muscular pain. All suffered from some muscular weakness at some time during the illness.

With one exception, an adolescent boy with severely painful muscles, all of these patients had some degree of muscular atrophy in the distribution of their muscular weakness. Ten of the 16 exhibited muscular weakness in the more proximal muscles; that is, the shoulder girdle, pelvic muscles, and proximal muscles of the legs. The remaining patients showed generalized muscular weakness and wasting, but none displayed specific weakness of the peripheral muscles of hands or lower legs with preservation of muscular strength in the more proximal groups.

SKIN

Various degrees of skin involvement occurred in six of these patients at some time, while 11 had none. It was striking that four of the six patients with dermatologic involvement—and these were the cases with the most severe skin involvement—were adolescents between the age of ten and 20—patients in whom a true "dermatomyositis" occurred. Of the other three patients, two had minor skin disturbances; in one it was noted that "occasional peel-

ing of the skin" occurred, and in the second some pigmentation was present. The third patient, a man of 65, had recurrent, severe, generalized rashes, thought to be allergic in origin, over a period of two to three years.

ARTICULAR AND OTHER SOFT TISSUE INVOLVEMENT

Eight of these 17 patients presented prominent joint or non-muscular soft tissue involvement as part of their disease. Three of these were children between the ages of ten and 15, two of whom had calcinosis universalis. Both of these children had, in addition, severe skin involvement. Two other patients had a long standing history of intermittent joint swelling and contracture, with other features of rheumatoid arthritis. One adult had mild episodes of ankle swelling, and another patient had severe fixation of several joints in the course of an illness that subsequently had many features of disseminated lupus erythematosus.

PHARYNGEAL AND ESOPHAGEAL INVOLVEMENT

Six of the 17 patients at some time complained of dysphagia. These cases were evenly scattered throughout the age groups and occurred with equal frequency in those patients with and without skin involvement. Only one had an upper gastrointestinal x-ray study; it demonstrated pharyngeal muscle weakness.

NERVOUS SYSTEM

There was a notable paucity of neurological signs other than those related to muscles in these patients. Generalized areflexia occurred in two, and in one of these it was accompanied by numerous clinical manifestations of an associated peripheral neuropathy. In several patients, the reflexes were described as "sluggish," but this probably has dubious significance.

Laboratory Tests

LUPUS ERYTHEMATOSUS CELL TEST

The Lupus Erythematosus (LE) cell test was positive at some time in the course of the disease in three of these patients. The nature and occurrence of these tests deserve a word of comment. In one adolescent girl, clinical features of disseminated lupus were numerous early in the course of her disease, but repeated LE cell preparations were negative. Only after the lapse of a year, when the disease was in striking remission, did positive LE cell preparations appear. In a second case, positive LE cell preparations were surprising in view of a clinical history confined to recurrent proximal muscular weakness in an otherwise healthy adult male. The third positive lupus preparation occurred in a child whose major clinical manifestations were dermatological and in whom a presumptive diagnosis of scleroderma was maintained.

TESTS FOR EVALUATION OF INFLAMMATORY
ACTIVITY OF DISEASE—"ACUTE PHASE REACTANTS"—
(Tables 2 & 3)

A battery of tests to evaluate changes in various "acute phase reactants" characteristic of fundamental response in various stages of illnesses, particularly rheumatic fever, were studied in eight patients. The battery included the C-reactive protein, mucoprotein by Sialic acid estimation (Hess), Weltmann reaction, cold Heparin precipitate test and electrophoretic pattern as well as Antistreptolysin O titer.

C-reactive protein was positive in four patients, notably so in three of them. Two patients presented severe joint involvement and some indication of

peripheral neuropathy; clinical findings were suggestive of rheumatoid arthritis or periarteritis nodosa. A third patient had a moderately rapid progression of myopathy following a respiratory illness and subsequently expired, probably of carcinoma, although this was never proven. A fourth patient was an adult male with a recurrent proximal weakness who also showed the positive LE cell preparations.

The mucoprotein determinations were greatly raised in the patients with elevated C-reactive protein. Two of these patients had previous prolonged cortisone treatment and it may be said that the acute phase reactions were rebound to that therapy. Two of these same patients had a severe left shift in Weltmann reaction, and one had an elevated ASO titer

TABLE 2
LABORATORY TESTS IN MYOSITIS PATIENTS

Case	Age	Sex	Major Clinical Findings	CRP	Sialic Acid ODU	Weltmann Serocoag- ulation Band	Cold Heparin Ppt.	ESR mm/hr	ASO Todd Units
8	43	M	Recurrent weakness of proximal leg muscles. (LE cell prep., pos.)	3+	590	3	1+	22	50
3	13	M	Arthropathy, dermatitis, muscle wasting	0	352	6	Pel	24	50
			Calcification in soft tissue.	±	380	5	Pel	42	50
14	65	M	Rapid onset pain and weakness legs, muscles, dysphagia.	3+	442	3	—	—	12
11	58	M	Rapid onset of arthralgia, muscle weakness, edema of face.	0	285	5	Pel	18	12
1	10	F	Recurrent arthritis, dermatitis, muscle weakness. Marked calcification muscles and soft tissues, extremities.	0	262	7	Pel	22	50
2	11	F	Severe dermatitis and arthralgia, LE cell prep. pos., calcinosis cutis, severe.	1+	QNS	8	Pel	27	125
9*	46	M	Previous arthritis and prolonged cortisone treatment, muscle pain	0	416	3	—	—	125
			peripheral neuritis	4+ (1958)	QNS	<3	Pel	25	QNS
				4+	516	<3			
				2+ (1960)	QNS	7	—	—	500
12	50	F	Arthritis 4 years with cortisone treatment, then muscle wasting, pain and dysphagia. Chronic pyelonephritis (E. coli.)	0	QNS	4	2+	23	166
				4+	QNS	4	—	—	12
				4+	504	5	—	34	QNS
							2+	32	50

* Note: This patient recovered.

TABLE 3
SERUM ELECTROPHORESIS IN MYOSITIS PATIENTS

Case	Sex	Clinical	Total Protein Gm. %	Albumin % T. P.	Globulin % T. P.	Alpha 1 Globulin % T. P.	Alpha 2 Globulin % T. P.	Beta Globulin % T. P.	Gamma Globulin % T. P.
8	M	Recurrent proximal muscle wasting L. E. pos		45	55	6	19	14	16
14	M	After U. R. I. Progressive painful weakness of legs and weight loss. (? cancer lung)	5.52	30	70	7	20	18	25
9*	M	Old arthritis (RA) treated with increasing cortisone. Present illness with arthritis, neuritis, myositis. Positive rheumatoid factor.	(1958)	23	77	11	24	13	29
				29	61	10	23	11	27
			7.1						
12	F	Arthritis treated with Cortisone for 7 months followed by painful weak muscles. Chronic pyelonephritis.	(1964)	43	57	4	12	10	31
			4.40						
			4.36	28	72	7	20	15	30

* Note: This patient recovered.

(500 U). This last patient had a long history of arthralgia and also suffered from peripheral neuropathy; periarteritis nodosa was therefore strongly suspected.

Electrophoretic patterns were of interest in all four patients on whose serum they were studied. The alpha globulins were increased consistent with elevations in mucoprotein (as indicated by sialic acid estimation). See *Tables 2 and 3*. In three patients the total globulins were 70 per cent or more of the total protein on at least one occasion, with gamma globulin range from 25 to 31 per cent.

Course of the Illness

Several different types of patterns of illness were seen in this group of patients. One elderly man with fairly abrupt onset of muscular weakness and a fairly rapid progression expired nine months after the onset of the illness. It is possible that myopathy in his case was secondary to pulmonary carcinoma, although this could not be determined. Five adults in the 40 to 50 age group displayed a course characterized by several attacks of weakness of proximal muscles with partial recovery but eventual severe weakness. In

three patients the muscular weakness was intimately associated with long-standing arthritic disease; they were treated with adrenal cortical hormones. Four children between the ages of ten and 15 showed steady progression of a chronic illness with major skin and joint manifestations without remission. In another case, the patient was an adolescent who had several remissions of joint, muscular and systemic findings. The remainder of the cases were unavailable for follow-up.

Response to Steroid Medication

Thirteen of these 17 patients were given prolonged courses of adrenal corticosteroid hormones to evaluate their response to this group of compounds. Of this group of 13, only four patients seemed to show a definitely favorable change. Of these, one was a 16-year-old girl with numerous acute systemic findings of disseminated lupus erythematosus. Her active disease recurred over a period of three years and had responded on several occasions to repeated use of the steroid drugs prior to her fatal attack. A second patient was an elderly adult man whose illness was apparently confined to muscular weakness. Partial re-

turn of muscular strength and substance occurred with the use of steroid drugs, although weakness and wasting recurred after one year. The third and fourth patients with clinical findings restricted to proximal muscular weakness responded with partial recovery of strength on steroid drugs, but there was some residual disability. In the other patients, no favorable response could be ascribed to steroids. In several of them, a long course of steroids had been given without appreciable effect, and muscular weakness was apparently progressive during the course of this treatment.

Discussion

It is apparent that there is considerable heterogeneity in the clinical manifestations of these individuals with inflammatory and degenerative changes in muscle tissue. However, the cases do seem to fall into three general categories: (1) Polymyositis as a comparatively isolated entity; (2) Polymyositis in the context of other conspicuous features of so-called "dyscollagenosis," and (3) Dermatomyositis. In these cases conspicuous association of polymyositis with carcinoma was not observed; however, this is not a series of classical dermatomyositis.

The first group of patients with myositis (eight of this series), corresponds to those originally described by Wagner in the late 19th century.⁷ This clinical syndrome was virtually ignored during the next several decades when myositis was described chiefly in the dermatological literature in the context of dermatomyositis. Interest in the broad spectrum of polymyositis was revived in recent decades by several studies.^{1-3, 8} This illness has its onset (unlike typical dermatomyositis) in the fifth or sixth decade, and it is characterized by painless weakness with some wasting of the proximal muscles of limb and trunk. Spontaneous remissions and exacerbations are the rule, usually over a period of several months, and the patients are frequently left with some permanent degree of muscle weakness after a second or third attack. However, two patients in this group had only minimal muscle weakness after two and four years of the illness.

That some of these patients with restricted polymyositis may fit in the "dyscollagenosis" framework is compatible with clinical and laboratory findings. Evidences of inflammatory activity are noted in findings of the C-reactive protein, with changes in Weltmann (Serocoagulation band) reaction, and of elevated Sialic acid for mucoprotein. These findings may some times indicate increases in the exudative or degenerative processes, and at other times in the proliferative or healing phase.

From the clinical side the following cases illustrate the frequently occurring links between apparently

isolated polymyositis and other diseases thought to be related to autoimmunity—systemic lupus erythematosus in the first case and thrombocytopenia purpura in the second.

C. W., a 43-year-old man, had had three attacks of weakness of the shoulder girdle muscle over a period of two years. Physical and neurological examination revealed only the moderate, flaccid weakness of the deltoid, supra- and infra-spinatus muscles bilaterally. The patient had generalized areflexia. Activity studies showed 3 plus C-reactive protein, Mucoprotein of 590 ODU Sialic acid, Weltmann reaction tube 3 (all markedly abnormal) and two LE cell preparations were positive.

D. H., a fifty-year-old man, was first hospitalized with idiopathic thrombocytopenia purpura. Eight months later, after an upper respiratory infection, bilateral proximal leg weakness and waddling gait appeared and muscle biopsy at this time showed inflammatory and degenerative changes. The patient was otherwise well but muscle function returned slowly, and not quite completely, over the subsequent year. Rheumatogram was negative.

Two other patients in this "restricted polymyositis" group, gave a history of recurrent, although mild, "peeling" of the skin, suggesting that the disease was not restricted to muscle. Only one of these patients showed a clearcut improvement on steroid medication.

The other larger group of patients suffered from myositis as a part of a disease complex that clearly included other systems.

Five of these were clinically dermatomyositis, all occurring in children and adolescents. It is of interest to note here that whereas this and other series demonstrate the lack of clear distinction between polymyositis and dermatomyositis, an analogous gradation between the entities of dermatomyositis and scleroderma is also apparent. Many feel that it is futile to make a distinction, and that the same process may in one individual be more a muscular disease, in another more cutaneous.⁵

Two of our cases presented signs of calcification in both skin and fascial tissue, the former seems to be more common in scleroderma and the latter in dermatomyositis. Selye has recently called attention to the presence of abnormal calcification in various kinds of multiple system diseases.⁵

The place of myositis in the "dyscollagenoses" is emphasized by two of our cases in particular. One was a child in whom skin changes long warranted a diagnosis of scleroderma. In later years, however, she developed arthralgia, leukopenia, fever and other clinical signs of disseminated lupus; her LE preparation was, at this time, positive. At this time she also fairly rapidly developed muscle wasting and atrophy,

and a diagnosis of myositis was made. Scleroderma and disseminated lupus (like scleroderma and dermatomyositis) are frequently seen in combination.

The second case was that of an adolescent girl who presented prominent muscle wasting in the early stages of a disease which had many characteristics of disseminated lupus—fever, arthritis and leukopenia. Repeated LE cell tests were negative at this time. The muscle biopsy findings at this time were those of myositis. She underwent gratifying recovery of muscle strength and substance (as well as a remission of her arthritis and fever) with ACTH medication.

Four cases in this series had prominent rheumatoid manifestations—(three had increases in "acute phase reactants" in blood serum and one of these demonstrated a favorable response to steroid medication). This less familiar arthritic component of polymyositis has been recently reviewed by Pearson.⁴

The results of steroid treatments in this series is not as favorable as that of others.^{3, 6, 10} The reason may be that those cases of restricted "polymyositis" show better results than those of the more diffuse "dyscollagenosis" which made up a majority of this series. The incidence of favorable response in the latest compilations of the large series from Newcastle¹⁰ was 80 per cent whereas percentage in this series was 30 per cent. Nevertheless, the necessity of an initial trial of large doses of ACTH or adrenal steroid is apparent.

Summary and Conclusions

Seventeen cases of polymyositis as diagnosed clinically or pathologically are reviewed.

Clinically, cases fall into two categories: (a) those with manifestations more or less restricted to skeletal muscle; this syndrome tends to affect adults, to be remittent and relapsing, and (b) those with muscle weakness and atrophy and pathological features of muscle inflammation and degeneration in the context of other "collagen diseases"—notably dermatomyo-

sitis, rheumatoid disease and disseminated lupus erythematosus.

Some cases with the clinically more "restricted" type of polymyositis did reveal isolated possible evidence of other "collagen disease," e.g., a positive LE preparation (stigma of SLE) or some minor skin rash.

Weakness of pharyngeal muscles was a common feature.

Favorable response to ACTH or adrenal steroids occurred in only 30 per cent of the cases, but in a higher proportion of those patients whose disease was apparently restricted to muscle than those with symptoms of generalized collagen disease.

The battery of laboratory tests for "acute phase reactants" indicated the varying degrees of activity in four of the eight patients studied at that time. These patients also revealed abnormal electrophoretic patterns consistent with the changes in the other tests, especially associating the increased alpha globulins with the paralleled elevations in mucoprotein estimations.

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Vocal Cord Injection . . .

for the Restoration of Laryngeal Function

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THE CLOSURE of the glottic space by the vocal cords is accomplished by the sphincter action of the laryngeal musculature. From this important mechanism are derived the functions of phonation, cough, and protection to the lower air passages during deglutition. Aspiration during swallowing and severe impairment of voice and cough occur when this valve action of the larynx is lost, but the surgical narrowing of the glottis may restore these functions in patients with lateral fixation or adductor paralysis of the vocal cord. Arnold¹⁻⁶ advocates the injection of teflon paste into the involved vocal fold, using the technique and instrument originally devised by Brunings,⁷ and other authors⁸⁻¹⁰ using this technique, with slight modifications in some instances, have confirmed the effectiveness of this procedure.

Etiology and Pathogenesis

Adductor paralysis of the vocal cords may be secondary to many different causes. It usually follows a lesion of the vagus nerve with involvement of the superior and inferior (recurrent) laryngeal nerves. Injuries to the motor nucleus ambiguus in the central nervous system by bulbar polio, syringobulbia, degenerative and vascular processes can also produce this type of paralysis. Partial involvement of the recurrent nerve in the neck, usually at the level of the thyroid gland, or complete transection of this nerve in its long trajectory in the mediastinum is also a common reason for vocal cord paralysis.

In 1965 a series of 14 patients with adductor paralysis of the vocal cord were seen in the Department of Otolaryngology of the University of Kansas Medical Center. All of these vocal cords were found to be immobile in the lateral, paramedian or intermediate position. In four of these patients the paralysis occurred after surgical procedures upon the thyroid gland. Six of the subjects showed changes in the mediastinum or superior pulmonary lobe and pleura due to arrested tuberculosis, histoplasmosis, radiation therapy and different surgical procedures.

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Two patients had undergone complete resection of the vagus nerve during radical neck dissection; one of the operations was performed for the excision of a large chemodectoma of the carotid artery and the other for the excision of a metastatic node. In two pa-

An accurate diagnosis of uncompensated glottic insufficiency due to adductor paralysis or lateral vocal cord fixation should be established by history, voice analysis and indirect laryngoscopy. After the etiology responsible for the paralysis is discovered, the patient should be assessed for teflon paste injection. Both this assessment and a precise technique of cordal injection have a paramount bearing upon the final results.

tients with paralytic dysphonia of more than five years' duration no apparent cause for the paralysis was encountered after an extensive survey.

Diagnosis

The diagnosis of insufficient glottic closure due to lateral fixation or adductor paralysis of the vocal cord is ascertained by the clinical history and by voice analysis and confirmed by indirect laryngoscopy. The voice of these patients is weak and lacks resonance and projection. Owing to the lack of control of the air used for phonation, these patients have to compensate by short inspirations, sometimes in the middle of a word, which imparts to their speech a peculiar dyspneic quality. The ability to hold a tone (phonation time), which normally is between 20 and 30 seconds, is greatly reduced (5 to 10 seconds). There is also a complete loss of the singing voice, a reduction of the vocal range and a lowering of the speaking pitch.

Aspiration of foodstuffs, particularly liquids, during deglutition is a common complaint, and the effectiveness of cough is greatly reduced. If the paralysis improves or the contralateral vocal cord is able to



Figure 1. Adductor paralysis of the right vocal cord. Patient under general anesthesia.

compensate for this glottic insufficiency, the symptoms improve proportionately.

Technique

Glottic insufficiency that remains uncompensated can be improved by means of cordal injection with teflon. Teflon is a plastic of high molecular weight which, due to its inert biological quality, is very well tolerated by the tissues. For injection, this substance is ground into particles of 50 to 100 micra of approximate size and mixed with a glycerin vehicle. Arnold⁵ reported favorably upon the tissue tolerance of teflon paste when this substance is injected into the leg muscles of rabbits. Other workers¹⁰ studied the acceptability of teflon paste by the laryngeal tissue of dogs. In this study it was learned that teflon paste produces, by mechanical means, the medial displacement of experimentally fixed and paralyzed vocal cords. Two years after the injections no migration of teflon particles was found, and no adverse inflammatory or neoplastic effects were demonstrated from the teflon or glycerin vehicle.

The injection of teflon paste is best carried out by direct laryngoscopy with the patient under topical anesthesia. A Bruning syringe is loaded with inject-



Figure 2. Glottic insufficiency being corrected through teflon paste injection. Notice needle in the right vocal cord.

able teflon paste and introduced through the chest-supported Robert's laryngoscope until the tip of the needle reaches the level of the glottis. After retracting the false vocal cord with the shank of the needle, one or two injections at different sites are carried out depending upon the original configuration of the glottis. Care must be exerted not to place the injection into the vocal ligament itself to avoid undue local deformities which would impair the final results. Careful planning of the site and amount of teflon to be injected must precede each injection, particularly in those cases performed under general anesthesia (Figures 1, 2, and 3).

When the procedure is successfully carried out under topical anesthesia, it is rewarding to observe an immediate improvement of the voice and the quality of the cough.¹¹ Hospitalization for one or two days is advisable.

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MONONUCLEOSIS

Infectious mononucleosis, a disease primarily affecting school-age children and young adults (to age 30), can be controlled within three to 14 days by early treatment with anti-inflammatory steroids, reports Dr. M. R. Chappel of Tucson, Arizona. Bed rest can be eliminated in about two thirds of the patients. For many years the diagnosis of mononucleosis carried with it a medically recommended period of inactivity and bed rest of two to 12 weeks. In the past many patients dropped out of school for a semester. "Such a prolonged period of disability and bed rest is preventable," Dr. Chappel contends.

During the past eight years, Dr. Chappel has treated more than 400 patients with mononucleosis, using steroids, and not a single complication that could be attributed to the therapy has occurred.

Following confirmation of the diagnosis by blood and other laboratory studies, the patient is started promptly on oral steroid therapy: cortisone, hydrocortisone, prednisone, prednisolone, or one of the newer derivatives. Patients are put to bed until their fever is gone, usually within 12 hours after start of therapy. Drug doses are gradually reduced over the treatment period, depending on individual progress of each patient, and generally are discontinued within two weeks. The majority of patients remain symptom-free and have felt well on this regimen. The high protein diet, no contact sports, and an extra hour's rest daily also are recommended. "Contact sports and strenuous activity are avoided to prevent the possibility of a ruptured spleen," Dr. Chappel said. "Avoidance of such sports is recommended for one month but activity increasing to that normally done is recommended as soon as this disease is under good control." In the study group, most patients attended classes as usual, but did not participate in contact sports. Other physical education classes were permitted.

During the school year 1963-64, three different physicians, including the author, treated 60 patients for mononucleosis. Results were compared with 34 patients treated in 1962-63 and 11 patients treated from 1957-1962 with cortisone and previously reported. In these 205 patients, only 96 required bed care, averaging 10.3 to 14.7 days. Dr. Chappel concludes that mononucleosis can be controlled within a few days by the use of steroids. "The steroid treatment of mononucleosis is safe. No serious complications occurred in any of the 400 patients treated." Further, "use of steroids early in the disease prevents or lessens the hepatosplenomegaly syndrome with its jaundice and impaired liver function." With this form of treatment, blood studies other than those needed to establish the diagnosis are unnecessary and only add to the cost of treatment.—*Clinical Med.*, November, pp. 1773-1778.



Figure 3. Perfect approximation of the anterior two thirds of the vocal cords after the first teflon injection. A second injection at X produced the approximation of the posterior third of the cords.

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Cosmetic Surgery

Correcting Emotional, Rather Than Functional, Defects

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THE EXACT ROLE of cosmetic surgery in the overall family of medical specialties has never been clearly delineated. With few exceptions, operative procedures designed primarily to improve either appearance or restore self-confidence have not been widely accepted by the medical profession as a whole. If indications were based upon physical dysfunction alone, cosmetic surgery could not exist. In reality such esthetic surgery is physiologically unnecessary, but from the psychological point of view such surgery might better be termed necessary unnecessary surgery. Indications lie not in the physical but in the emotional realm.

Although the finite clinical indication for such corrective surgery is indeed tenuous, the continued psychological impact of abnormalities of body image has created an undeniable need that can only be met by meticulous reconstruction. Unfortunately, there have been no guide lines established that can help with the evaluation of a prospective surgical candidate. In no other area must evaluation be so completely individualized. Although no defect is necessarily too big or too small, unless repair is technically not feasible, each must be evaluated in relation to the patient's individual problem, and therapy directed toward the correction of the individual finite defect. The demand for surgical correction of the esthetic defect, however, is increasing steadily throughout the country. Due in part to the extravagant advertising budget of the cosmetic industry, the general public is becoming increasingly more aware of those defects which tend to detract from appearance.

Since the majority of structural defects lend themselves readily to surgical reconstruction, it is our purpose to review briefly the etiology, therapy, and potential complication of the more common cosmetic deformities to emphasize the areas where psychological stress has created the greatest demand for repair.

Rhinoplasty

Deformities of nasal contour lend themselves readily to esthetic reconstruction. Although a great variety of individual abnormalities occur, the ma-

jority of the nasal defects fall into three categories.

SADDLE NOSE

The saddle nose is characterized by an irregular depression of the nasal dorsum usually associated with a widening of the nasal tip. These deformities occur frequently as a result of septal infection, or over-zealous submucous resection with loss of carti-

The finite cosmetic defect, in general, lends itself readily to surgical correction, and the vast majority of such deformities can be improved. There can be little doubt that society with its perhaps undue emphasis upon appearance has created a large group of frustrated people who may seek such help. Such surgery, however, is based upon emotional rather than physiological indication. Careful individualized management is the *sine-qua-non* of surgical success.

laginous support for the nasal dorsum. The surgical correction consists of providing the necessary dorsal support utilizing either autogenous bone, or an implant of surgical silastic carved to a predetermined shape and inserted into a soft tissue pocket created along the nasal dorsum (*Figure 1a, b*).

POST TRAUMATIC DEFORMITY OF THE NOSE

Trauma provides a multiplicity of defects of nasal contour that depend entirely upon the force and direction of the blow. The majority of these defects, however, consist of deformity of both bony and cartilaginous support (*Figure 2a*). Reconstruction includes correction of the bony deformity by refracture rhinoplasty combined with submucous resection (*Figure 2b*). Those two procedures may of necessity be staged if extensive resection of the septum is needed.

CONGENITAL DEFORMITY OF THE NOSE

Heredity and ethnic background produce by far

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Figure 1a

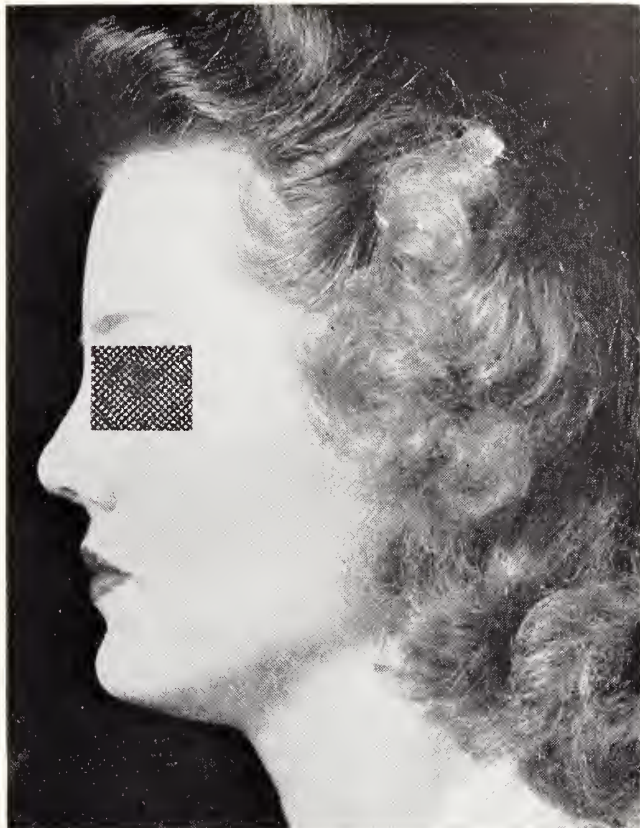


Figure 1b

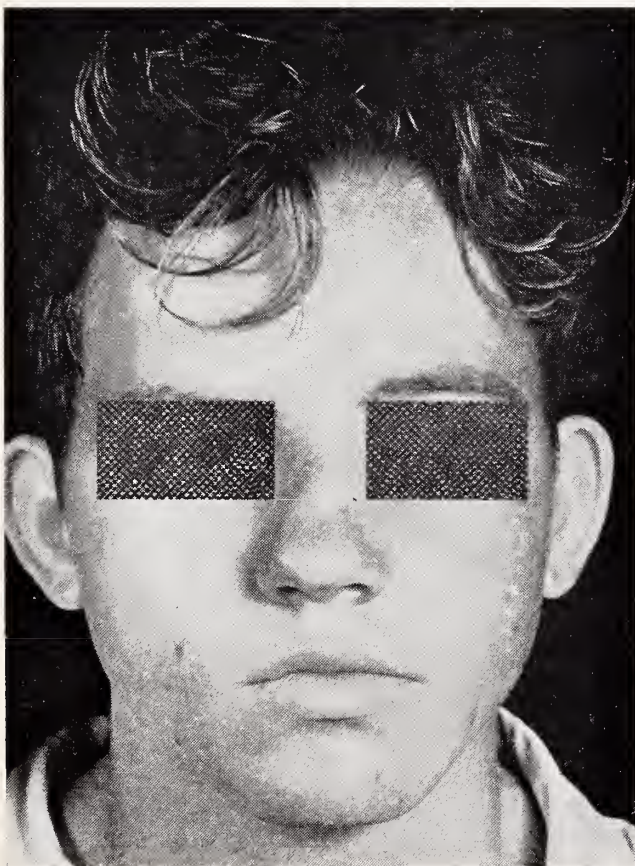


Figure 2a



Figure 2b

the largest group of nasal deformities. Although these may vary greatly in shape and size, most congenital defects are amenable to surgical correction, and the surgical approach must be individualized not only to correct obvious deformity but also to restore facial symmetry. Changes in appearance may be either subtle or dramatic depending upon the desires of the patient and the character of the defect. The individual patient may be just as sensitive to an apparently minor defect as he or she is to an almost grotesque abnormality (*Figure 3a, b*).

Mammoplasty

Within recent years, tremendous social emphasis has been placed upon the size and shape of the breast. Abnormalities of chest contour may provide a constant source of embarrassment, feelings of inadequacy, and even introversion despite the multitude of prosthetic devices available. Breast deformities are divided readily into two major groups. Micro-mastia which requires augmentation, or macromastia that necessitates subtotal resection of breast tissue with concomitant restoration of contour.

The small breast is augmented either by autogenous fat and fascia grafts taken from the buttock, or by some form of inert implant. The recent development of the silicones provides the surgeon with a simple and practical method of breast enlargement which is accompanied by a minimum of complications (*Figure 4a, b*). Placed upon the pectoral fascia beneath the breast tissue, these implants have no effect upon either sensation or lactation.

Reduction breastplasty is one of the few esthetic procedures which has clinical indication. Backache,

lordosis and irritation of the skin of the shoulder from brassiere straps may accompany excessively large breasts. Depending upon age, two surgical approaches were utilized to reduce the breast. If the individual is beyond the childbearing age, a subtotal amputation with free nipple graft is the procedure of choice (*Figure 5a, b*). In the younger patient, where preservation of lactation and nipple sensation is essential, the excess tissue is resected leaving nipple function undisturbed. The breast is then coned into a new position on the chest wall and the redundant skin excised (*Figure 6a, b*).

Facial Scars

With the steadily increasing incidence of disaster on the highway, facial scars form the next most common group of esthetic deformities. The psychological impact associated with sudden change from normal to grotesque may be severe. Even though it must be stressed that no scar can be completely eradicated, a high percentage of those individuals with facial scarring can be improved by corrective surgery utilizing surgical revision, dermabrasion or a combination of both (*Figure 7a, b*).

Acne Scars

The pitted scars secondary to acne may be improved by dermabrasion. Although the scars are not obliterated, the reduction of the depth and of the punctate appearance of the pits renders the individual scars less visible (*Figure 8a, b*). With extensive deformity, dermabrasion is usually multistaged at intervals of approximately three months, and despite the



Figure 3a



Figure 3b

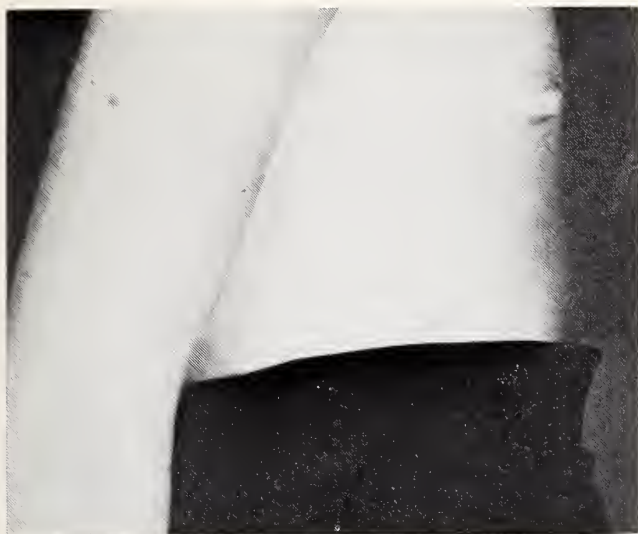


Figure 4a



Figure 4b



Figure 5a



Figure 5b



Figure 6a



Figure 6b

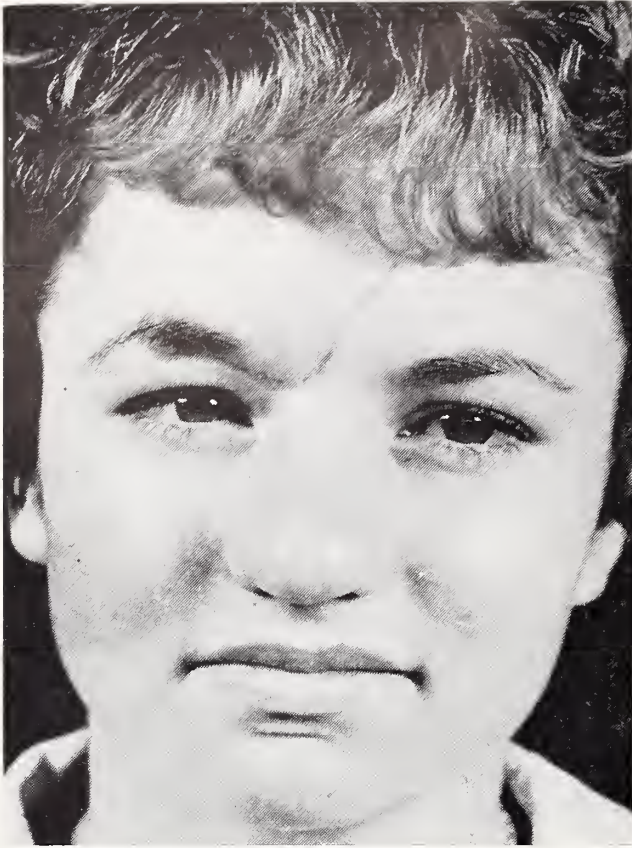
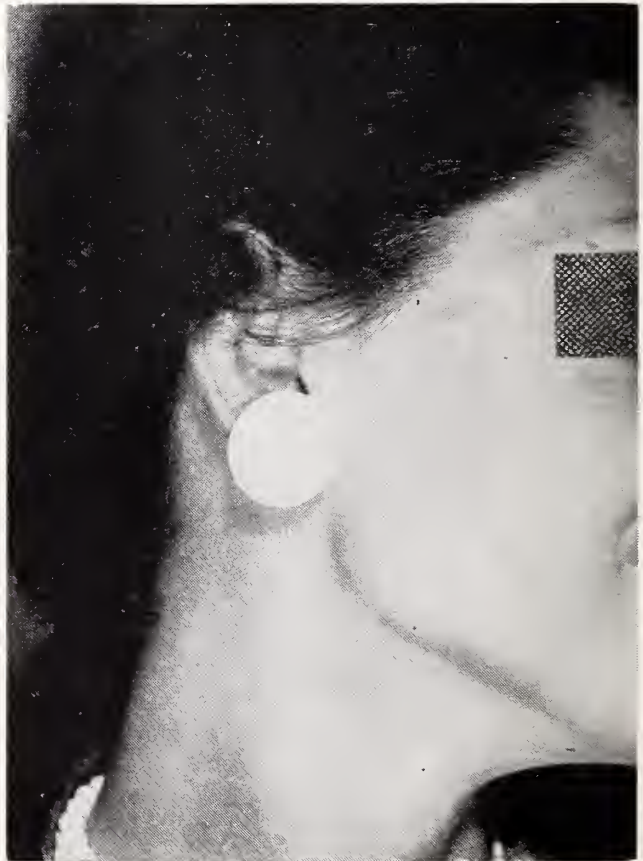
*Figure 7a**Figure 7b**Figure 8a**Figure 8b*



Figure 9a

Discussion

Modern mores have placed a premium upon appearance. "A man's face is his fortune" and "Clothes makes the man" are but two of the common aphorisms that reflect society's constant attention to the overall effect created by personal appearance. The multibillion dollar cosmetic industry has molded public opinion by a constant flood of advertising until the entire nation has become so cognizant of the effect of appearance that all facets of society spend a considerable portion of their earnings in this constant search for beauty of face and figure.

Social rejection may also be predicated upon appearance.¹ The movie makeup artist has characterized the so-called "criminal type," and those whose native appearance resemble these mythical characters are often viewed with suspicion. The "weak" chin is widely accepted as evidence of weakness of character. Unfortunately, the normal individual whose appearance does not "measure up" cannot help but be constantly frustrated by his lack of acceptance. Any individual with crippling congenital or acquired disease can learn to accept his limitations since the disease dictates the amount and direction of his productivity.² The esthetic defect, however, limits productivity only

(Continued on page 146)

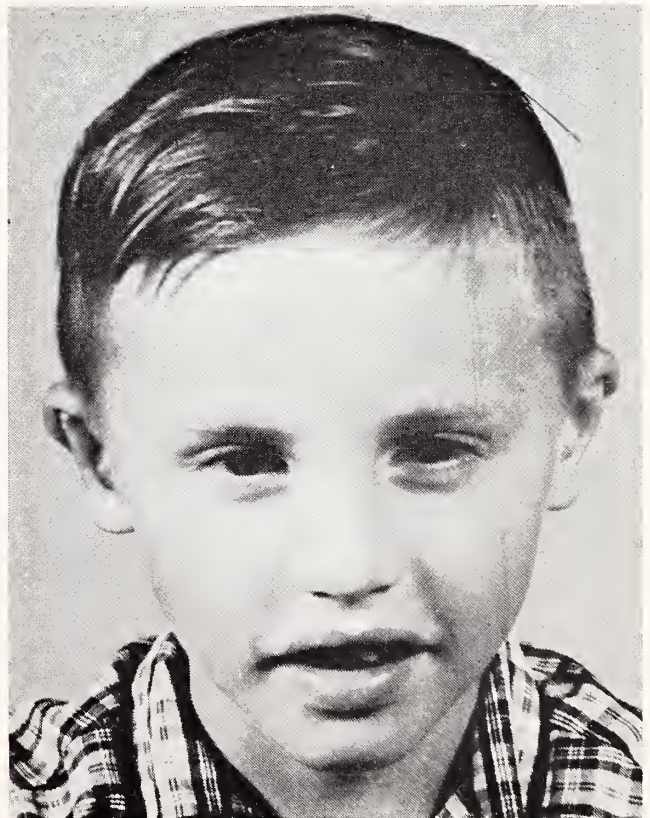


Figure 9b

fact that a deep abrasion of the face is produced, pain is not a significant factor in the postoperative period.

Protruding Ears

Congenital protrusion of the auricle produces characteristic deformity which is a constant source of psychic trauma to the younger individual. Subject to repeated jeers and teasing from his companions, the child with the protruding ear often welcomes surgical correction and becomes one of the most cooperative of all patients seeking esthetic reconstruction. Since the defect is a congenital failure of development of the normal antihelical ridge, treatment consists of the reconstruction of this ridge with the repositioning of the auricles in a more normal position (*Figure 9a, b*).

Rhytidectomy (Face Lift)

Premature aging creates multiple psychological problems which may be relieved surgically. Rhytidectomy consists of the meticulous removal of measured segments of skin and the imbrication of the subjacent fascia and muscle to give increased support to the facial soft tissue. Unfortunately, the surgical correction of the aging face is not permanent and the wrinkling coincident with loss of skin elasticity slowly recurs over a three to five year period. Face lift can be repeated following recurrence of wrinkling, if desired. This, however, is seldom carried out as the vast majority of patients desire only temporary relief of a sudden and premature aging process rather than eternal youth.

Extreme Obesity—

Psychiatric, Psychometric and Psychotherapeutic Aspects

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RUTH M. LAPI, M.D., *Kansas City, Kansas**

ALTHOUGH OBESITY has been the subject of innumerable psychiatric studies, few investigators have restricted themselves to examining only those persons whose corpulence has become excessive to the point of being almost a defining quality. We are speaking of people who are so greatly overweight they attract unfavorable attention to themselves, impair their ability to function in society and seriously endanger their health. Recent progress in biochemistry,⁸ medicine³ and surgery⁵ has helped to spotlight these so-called "superobese"⁶ patients. For the past three years we have been studying a collection of such extraordinarily fat individuals in hopes of developing fresh hypotheses about the role of emotional factors in obesity. The following is a preliminary report of some of our findings.

Method

Since September, 1962, every extremely obese referral to the Department of Psychiatry of the University of Kansas Medical Center has been considered for inclusion in the study. Thus far a total of 33 patients, including three men, have qualified with respect to the sole criterion that their weight be at least four standard deviations above the expected weight calculated for height, sex and age from standard tables.¹⁸ This represents an incidence of six per 10,000 referrals, inpatients and outpatients, to the University of Kansas Medical Center.¹¹

The data reported here derives from a review of hospital records, formal psychiatric consultations, psychological testing, group psychotherapy process notes and weekly weight records.

Hospital records were scanned to exclude patients whose obesity could be demonstrated to be a result of a metabolic defect or organic illness and to establish if any heretofore unreported pattern of laboratory test abnormality was present. Formal psychiatric consultation reports were available on 30 of the 33

patients in the group. Of these, 19 were seen personally by the senior author. Psychological testing included the Minnesota Multiphasic Personality Inventory (MMPI), Shipley Hartford Institute of Liv-

In this preliminary report we have presented selected aspects of three years experience with a collection of super-obese referrals to the Department of Psychiatry of the University of Kansas Medical Center. We have reviewed psychiatric consultations, psychological testing and group psychotherapy.

A study of 30 psychiatric consultations revealed that the subjects frequently evinced a disturbance of mood (usually depression or lability), commonly overutilized the defenses of denial and repression, often evidenced severe psychopathology, and were likely to be labeled with a "character" diagnosis by the examining psychiatrist.

ing Scale (SH), Draw-a-Person test (DAP), Food Attitude Scale (FAS) and a Biographical Data Sheet (BDS). Ten patients participated in weekly psychodynamically oriented 60-minute group psychotherapy sessions for periods ranging from three to 27 months. Psychotherapy was not directed at accomplishing weight reduction but at helping the patients with their problems in living. Discussion of dieting and related matters was neither encouraged nor discouraged. Two of the authors served as co-therapists for the duration of the study and the third observed the sessions by closed circuit television in an adjacent room where she recorded process notes on the group interaction. The facilities and equipment required for this procedure have been described elsewhere.¹⁶ After each therapy session, the authors met for 50 minutes to discuss their observations and to prepare a summary of the proceedings. These summaries provided an ongoing clinical impression of the salient themes and interactional styles during the therapy period. Follow-up psychological testing was administered to the five

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patients who remained in the group two years after its initiation in an attempt to substantiate further any psychological changes in the subjects. In addition, the patients were required to "weigh in" weekly at the psychiatric outpatient clinic on a special scale (most hospital scales are calibrated to only three hundred pounds). This procedure provided a weight record for each member of the therapy group.

Results and Discussion

For purposes of clarity and convenience of presentation, interpretative comments have been included in this section.

Table 1 enumerates the 33 subjects according to age, sex, height, weight, marital status, referral source and number of pounds above expected weight.

As expected, a review of available hospital records of 30 patients failed to reveal either a definitive metabolic etiology of the obesity in any case or an unusual pattern of laboratory values overall. Although many of the subjects had abnormal glucose tolerance tests and some had specific pathological findings apparently unrelated to their obesity, in general the medical findings were consistent with what one would expect from the literature.²⁰ The major results in our study were abstracted from psychiatric consultations, psychological testing and the group therapy experience.

Psychiatric Consultations

Formal consultations were available on 30 subjects. A compendium of the consultation data may be organized with respect to those features of the psychiatric (or "mental status") examination that were frequently considered abnormal. These categories include affect (or "mood"), mechanisms of defense, miscellaneous psychopathology and psychiatric diagnosis.

Table 2 summarizes the most frequently cited descriptions of affect. It is of note that 14 patients appeared overtly *depressed* and that of the 12 who were either *cheerful* or *anxious*, six were thought to be *labile* in mood, perhaps an indication of underlying depression. The finding of emotional lability—a tendency to shift abruptly (but not so abruptly or unaccountably as patients with "pseudobulbar palsy") from one predominant mood to another, often with circumscribed outbursts of tearfulness—was noted in 18 patients. Seven patients were considered *paranoid*, a term which in this case refers to interpersonal "style" in the interview, chiefly to an attitude of distrust, suspiciousness, uncooperativeness or outright hostility. Four patients were considered *bland*, a term that refers to an inappropriate lack of concern or involvement. Only two of the 30 patients, both con-

TABLE 1
CHRONOLOGICAL AGE (CA), SEX (S), HEIGHT (H), WEIGHT (W), MARITAL STATUS (MS), REFERRAL SOURCE (R), AND NUMBER OF POUNDS ABOVE EXPECTED MEAN WEIGHT FOR AGE, SEX AND HEIGHT (LBS.>ME), FOR 30 FEMALE AND 3 MALE SUPEROBES PATIENTS.

No.	CA	S	H	W	MS	R*	Lbs.>Me
1	29	F	5'0"	262	M	OPC	149
2	23	F	5'4"	204	M	OPC	83
3	50	F	5'6"	275	M	MED	123
4	16	F	5'3"	278	S	MR	134
5	25	F	5'6"	365	M	MR	232
6	41	F	5'4"	241	D	OPC	101
7	14	F	5'6"	235	S	MR	110
8	29	F	5'2"	201	M	GYN	82
9	52	F	5'6"	285	M	MED	133
10	33	F	5'5"	280	M	ER	145
11	36	F	5'3"	242	M	ER	116
12	30	F	5'6"	334	M	OPC	195
13	61	F	5'2"	319	M	MR	182
14	45	F	5'4"	245	D	OPC	105
15	45	F	5'0"	313	M	MR	106
16	45	F	5'6"	230	M	MR	83
17	32	F	5'7½"	312	M	MR	168
18	34	F	5'6"	435	S	MR	296
19	52	F	5'7"	312	D	MED	156
20	30	F	5'2"	248	M	OPC	122
21	30	F	5'1"	227	M	MED	104
22	41	F	5'8"	320	M	MR	175
23	38	F	5'3"	245	M	OPC	116
24	29	F	5'5"	222	M	OPC	87
25	23	F	5'1"	248	S	GYN	136
26	42	F	5'2"	291	M	MR	158
27	15	F	5'5"	300	S	MED	179
28	18	F	5'2"	240	S	MR	129
29	20	F	5'9"	322	S	MED	182
30	50	F	5'5½"	309	M		159
31	40	M	6'2"	521	M	MR	329
32	19	M	5'10"	232	S	MED	75
33	36	M	5'10½"	454	M	MED	282

* Referral Source: OPC (Out-Patient Clinic), MED (Medicine), MR (Metabolic Research), GYN (Gynecology), ER (Emergency Room).

sidered cheerful, were not felt to have any perturbation of affect.

Table 2 also provides a frequency count of the defense mechanisms which were thought to be excessively utilized by the patients. As in the assessment of affect, these findings should be considered descriptive and subjective; at best, roughly quantitative. One can conservatively say that the utilization of denial (or repression) is a singular feature of the group as a whole. Since conflictual stimuli, both from the en-

TABLE 2
FREQUENCY COUNT OF DESCRIPTIONS
OF AFFECT AND MECHANISMS OF DE-
FENSE IN PSYCHIATRIC CONSULTA-
TIONS ON 30 SUPEROBES PATIENTS

<i>Affect</i>	<i>n*</i>	<i>Mechanism of Defense</i>	<i>n</i>
Anxious	5	Denial (Repression)	30
Bland	4	Conversion	5
Cheerful	7	Projection	8
Depressed	14	Reaction-Formation	8
Labile	18	Regression	1
Paranoid	7	Withdrawal	1

* n = number of times mentioned.

vironment and the intrapsychic apparatus, are sealed off from consciousness, many patients in the group essentially were unaware, superficially, of the presence of emotional problems.

In evaluating psychopathology in a retrospective study of consultations, it is mandatory to reflect that what is reported by the examining psychiatrist is only a fractional, and sometimes inadequate, representation of what the patient's actual psychopathology may be; a list of psychopathologic findings is useful only insofar as it may demonstrate the breadth and quality of disordered mental functioning. The following list is distinguished both in terms of its variety and severity (the parenthetical figures refer to the number of times terms used more than once were listed): depression (4), somatization (4), anxiety (3), obsession (3), phobia (3), compulsion (3), withdrawal (2), concreteness (2), sexual promiscuity (2), circumstantiality, frigidity, impaired remote memory, impaired judgment, temper tantrums, poor concentration, untidiness, and cyclothymia. One patient had a history of a psychotic illness with both the primary and secondary (including auditory hallucinations and delusions of persecution) symptoms of schizophrenia. Another patient had been a severe alcoholic until, with the help of Alcoholics Anonymous, she went "on the wagon" and became, in her own words, "a foodoholic." Five patients mentioned serious interpersonal difficulties with their mothers, which some examiners labeled "symbiosis" with mother. Two patients openly acknowledged serious marital difficulties. Although most of the patients, as a group, were considered to lack sufficient insight and motivation to be candidates for psychotherapy, nine patients recognized a relationship between eating and emotional, physical or other events. They commented that they overate when depressed, anxious, angry, or rejected; before menstruation, after dieting, after masturbating and at night; and for reward. Six patients mentioned numerous dietary failures. While only two patients

admitted sexual promiscuity, two others reported that they feared dyscontrol of sexual impulses.

Nineteen patients in the consult group were labeled with a diagnosis of Personality Disorder. Such a diagnosis connotes that the psychiatric difficulty is manifested by a lifelong pattern of behavior rather than by the acute onset of mental or emotional symptoms.¹ Twelve of the above were classified as "passive-aggressive," one as "emotionally immature," one as "emotionally unstable," and five were unspecified. The remaining patients were diagnosed as follows: Depressive Reaction (5), Anxiety Reaction (1), Schizophrenic Reaction, Paranoid Type (1), and no diagnosis (4). The preponderance of "character" diagnoses indicates that the consulting psychiatrists tended to see the patients so listed as chronically disturbed but not particularly in subjective distress. They saw most of these characterologically afflicted individuals as being either passive-dependent (helpless, indecisive, clinging), passive-aggressive (pouting, stubborn, inefficient, obstructionistic, procrastinating) or aggressive (irritable, destructive, impulsive, resentful). Probably because they seemed to lack both subjective discomfort (and therefore motivation) and insight, they were generally appraised as being poor candidates for psychotherapy. Moreover, the psychiatric consultant rarely made a specific recommendation that might have been helpful in the long range management of the case.

Psychological Testing

To determine how personality factors relate to extreme obesity, the MMPI was administered to 28 superobese females. The MMPI¹⁰ is a personality test questionnaire which includes 550 "true-false" type items of diverse content. On the basis of several decades of empirical research, groups of items have been organized into three "validity" scales and ten "personality" scales.²¹ The validity scales indicate the extent to which the test results may be accepted as being an accurate description of the subject's actual personality. The personality scales measure either maladaptive behavior patterns (e.g., "social introversion") or similarity of response-patterns to a criterion group of patients homogeneous for a particular psychiatric diagnosis or trait (e.g., "depression," "hysteria"). In the most elementary scheme of MMPI interpretation, any scale score equal to or greater than two standard deviations above a mean obtained from normative data is considered "significant" or "pathological." Twenty-two of the 28 MMPI's (79 per cent) obtained from the superobese group revealed a significant elevation on one or more of the personality scales. Of the total group for whom MMPI profiles were available, eight were referred

for testing from the Department of Psychiatry; of this psychiatric subgroup, all (100 per cent) had significant personality scale elevations. Fourteen of the 20 MMPI's (70 per cent) obtained from patients who were referred for testing from medical or surgical (non-psychiatric) services showed significant elevations. Comparison data are available from Pearson *et al.* at the Mayo Clinic.¹⁵ Pearson and co-workers found that 74 per cent of 709 psychiatric patients and 43 per cent of 10,000 non-psychiatric patients obtained significant elevations on one or more of the personality scales of the MMPI. It therefore appears that extremely obese females are more likely to demonstrate psychopathology as manifested on the MMPI than a comparison population, regardless of referral source.

To facilitate interpretation of the MMPI results for the superobese group, the 28 MMPI profiles were merged to form a single, comprehensive profile based on means scale scores. This comprehensive, or mean, MMPI profile (*Figure 1*) admits to three broad conclusions.

First, the validity scales, which are within normal limits, suggest that the elevations on the personality scales represent an accurate assessment of the MMPI psychopathology in this group of subjects. Secondly, the profile of significant elevations does not fit any of the known actuarial code types,^{7, 13} indicating that no singular or definitive personality trait characterizes the superobese group. Thus, superobesity is probably not pathognomonic of a particular kind of psychiatric disturbance in terms of the present nomenclature. Finally, the mean MMPI profile was submitted to a computer analysis program of the Mayo

Clinic type,¹⁹ the system in operation in the Department of Psychiatry of the University of Kansas Medical Center. The following statements were "printed-out":

- Slightly more than average number of physical complaints. Some concern about bodily function and physical health.
- Mildly depressed or pessimistic.
- Probably somewhat immature, egocentric, suggestible and demanding.
- Somewhat rebellious or nonconformist.
- Avoids close personal ties.
- Dissatisfied with family or social life.
- Normal female interest pattern for work, hobbies, etc.
- Sensitive. Alive to opinions of others.
- Conscientious, orderly and self-critical.
- Tends toward abstract interests such as science, philosophy and religion.
- Normal energy and activity level.
- Probably reserved in unfamiliar and social situations.

The Shipley Hartford Institute of Living Scale¹⁷ was utilized to measure intellectual functioning. The SH consists of two parts, one a "multiple-choice" vocabulary subtest with 40 items and the other a "fill-in" problem subtest. The two subtests together assess general intellectual potential (IQ) and the ratio between the two subtests measures impairment in abstract thinking; the ratio index is known as the "conceptual quotient" (CQ). IQ scores from 21 superobese females range from 103 to 132, with a mean of 114.8 and a standard deviation of 8.02. Because this mean score is clearly above average, a deficiency in intelligence cannot be postulated as an explanation for extreme obesity, at least in this group

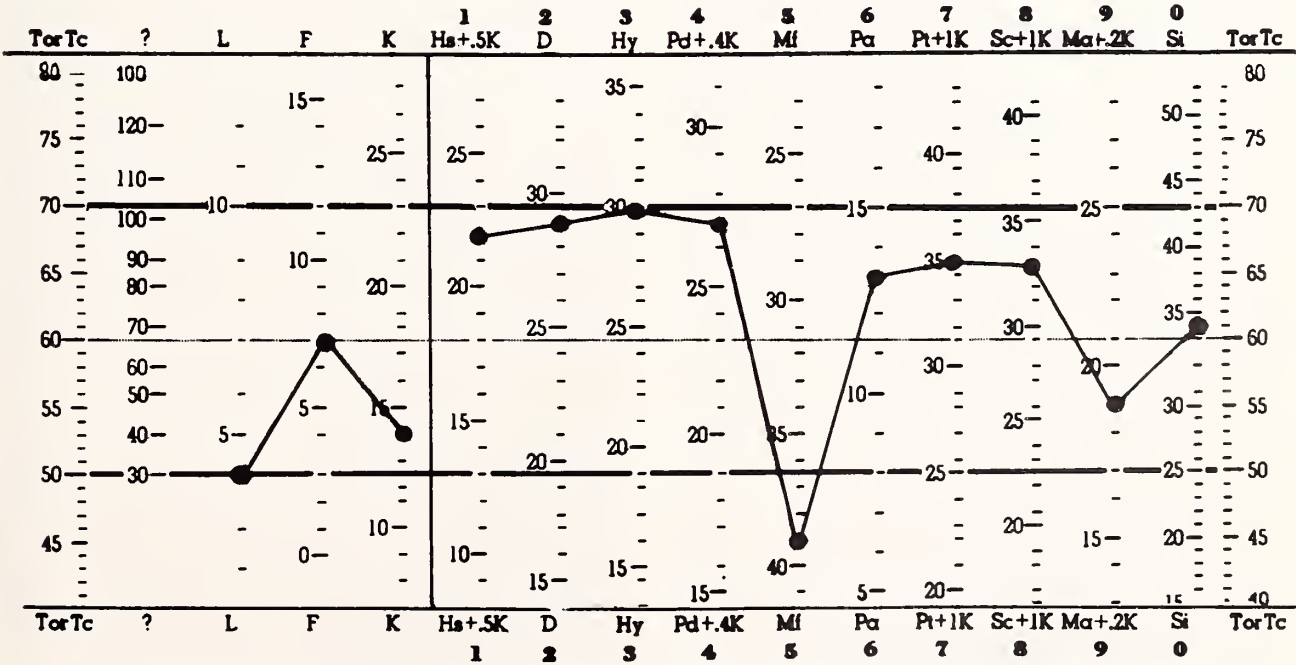


Figure 1. Mean MMPI Profile for 28 Superobese Female Patients.

of subjects. The CQ scores from the same patients range from 62 to 119, with a mean of 90.5 and a standard deviation of 14.6. The mean CQ for the group falls within the normal range (i.e., between 90 and 110), indicating that extreme obesity and intellectual impairment are independent. The fact that the mean CQ is near the low end of the normal range tends to confirm the impression derived from psychiatric consultations that some extremely obese patients do have difficulty in abstract thinking.

The Food Attitude Scale² was utilized to quantify attitudes toward food and eating. The FAS consists of a pool of 221 "true-false" items concerning food preferences and feeding attitudes. FAS scores for 26 extremely obese females range from 28 to 55, with a mean of 45.4 and a standard deviation of 6.53. This may be compared with normative data derived from a group of 430 female college students at the University of Texas² whose mean score was 49.3 with a standard deviation of 5.9. The direction and magnitude of this difference in FAS scores between the superobese group and the college student group indicates that extremely obese females hold relatively negative or unpleasant attitudes toward food as compared to a control population ($t = 2.93$ and $p < .01$).

Because disturbances in body image have frequently been described in obese patients,¹⁴ the Draw-a-Person test¹² was administered to 20 extremely obese females. In the DAP, the subject is provided with a plain, unruled sheet of white paper of standard size and instructed to draw the picture of a person; when the drawing is completed, the subject is requested to draw a person of the opposite sex. A total of 40 human figure drawings was obtained. Sixteen of the 20 subjects drew female figures first, a common and expected result often explained in terms of identification with one's own sex. Despite this, there were numerous indications of disturbances of sexual identity in the group of subjects. Specifically, 26 of the 40 drawings were asexual (absence of secondary sexual characteristics) or sexually unattractive (anatomic distortions or omissions, stick figures). Six drawings depicted blatant secondary sexual characteristics displayed in an exaggerated fashion (e.g., a buxom female in a scanty bikini). These findings suggest that superobese females tend to regard their own sexuality in extremely polarized terms; they see themselves as relatively sexless or as sexually overpowering. There is no middle ground *vis a vis* sexuality.

Certain features of the drawings tended to confirm previously related findings about immaturity and dependency. For example, 18 of the 40 drawings were of small, childish-looking, or youthfully garbed persons. On 12 drawings, hands were either hidden or

absent, suggesting that the subjects were disinclined to "handle" or cope with the environment. Of the 28 drawings in which hands appeared, eight showed hands extended, as if asking for help, or at the sides, as if grasping for balance. Facial expressions of the figure drawings suggested the emotional states of the subjects: three figures were obviously smiling, two seemed bland, and nine appeared to be clearly disturbed (angry, distorted, frowning).

Twenty-six subjects filled out a six page Biographical Data Sheet designed to elicit information concerning physical health, growth and development, educational level, sexual history and other personal matters. Only a fragment of this BDS data can be presented here. As expected, most (20 of 26) subjects acknowledged "weight" as one of their major current difficulties. Of the six who did not mention weight as a problem, two said they were seeking help for reasons of physical health. The remaining four listed various emotional problems, including "nerves," "tension," "depression" and "anxiety." Two of these four superobese subjects admitted suicidal ideation, and one admitted an overt attempt. The group as a whole was preoccupied with matters of physical health. In responding to a question about the presence of physical discomfort, only five subjects replied negatively; the median number of complaints cited was 1.5; one woman noted five specific somatic complaints. The frequency of hospital admissions for the group was high; excluding admissions related to parturition, the median number was approximately two. One woman had been hospitalized nine times. We may infer from this data that superobese females tend to have a high incidence of physical distress or discomfort.

A cluster of questions about earliest memories indicated that recall dated from between two and eight years with a mean of four years. Because seven of the 26 women failed to cite a specific age, special attention was focused on the content of recollections. Ten women left content unspecified, ten remembered distinctly unpleasant events (death, accident, injury, being lost) and only six reported memories that were not obviously unpleasant. If early memories condense general childhood feeling tones, then the above data suggests that many of the subjects experienced their early years as unpleasant or distressful.

Data from the BDS implies little, if any, relationship between formal educational level and excessive weight. Excluding one teenage subject still attending school, educational level ranged from completion of the seventh grade to completion of requirements for graduate degrees, with the modal response being completion of high school. Being extremely corpulent does not result from lack of education *per se*.

Group Psychotherapy

Since its inception, the psychotherapy group has met 112 hours, once weekly, for 27 months. To condense the voluminous clinical material that accumulated in that period requires that we focus on the most striking features of the total experience. These organize themselves in terms of developmental influences on the extremely obese patient, therapeutic problems and progress in treatment.

A frequently mentioned influence in the emotional development of our superobese patients was the dissolution of the family unit through death, divorce, or marital strife during childhood. The early environment was often perceived as threatening and chaotic; a consistent relationship with a loving maternal figure was commonly unavailable. Thus, the formative years were characterized by unstable object relationships. Many of the patients appeared to have an impaired sense of "self" or failed to establish a feeling of separateness from others ("individuation"). This deficiency in individuation may have been central in determining the patients' characteristic life style of dependency, diminished self-esteem and inhibited aggressivity, with deflection of hostile impulses inward. Failure to develop a sense of trust in a nurturant maternal figure and subsequent failure to develop autonomy antedate later problems of sexual identification,⁴ a recurrent theme in the group.

Historical material reported in group sessions suggests that sociocultural factors also shaped feeding behavior. Most of the patients grew up in families from the lower socioeconomic classes; food was not always plentiful and tended to be, in the family ethos, a major source of gratification and reward. In the patients' otherwise unpredictable environment, food became a reliable transitional object.²³ As one patient said, "Food was the one thing I could depend on. It never let me down." Another factor may have been that at least one of the primary identity models within the family was likely to have been obese. Pathological patterns of food intake may have been emulated, assimilated and fixed in childhood.

Many of the patients were already noticeably overweight by latency, and a few were involved with parents or parent surrogates in a power-struggle over food-intake regulation; this probably represents not only a prolongation of the combat so characteristic of the anal phase of psychosexual development but also a manifestation of their characteristic passive-aggressive personality style. Before or during puberty, some of the patients experienced or were threatened by some form of sexual molestation, not uncommonly incest. During this development phase, most of the patients engaged in sexual promiscuity, feared loss of sexual control, or developed a rigid, over-con-

trolled reaction-formation (e.g., Puritanism) to sexual impulse. Overeating and consequent extreme obesity (i.e., unattractiveness) served the dual functions of substitute gratification of repressed sexuality and safeguard against sexual dyscontrol. On the other hand, the abnormal eating behavior may have been merely another expression of a generalized breakdown of emotional control. The atypical patient, who remained relatively svelte throughout adolescence, gained weight sharply at other times of developmental stress, such as marriage or childbirth.

The typical extremely obese referral arrives in the group as a primitively organized individual with a long-standing habit of dietary indiscretion. Her immense proportions have been welded into her defensive armor, providing a shield against competition or threat as well as an excuse with which she can rationalize her failures. Moreover, she can symbolically equate her girth with "bigness and power," another recurrent theme. Although she has been told that the purpose of group psychotherapy is to help her with her problems in living, her expressed motive for joining the group is to lose weight. She has highly unrealistic, even magical, fantasies about weight loss. Because of her exorbitant use of repression and denial, she is unable to recognize problems other than those directly related to her obesity and believes that becoming slender will somehow eliminate all her difficulties. In psychotherapy, her passivity makes it difficult for her to contribute to the group or she may chatter glibly and circumstantially to control the group, thereby preventing scrutiny of her underlying problems. The group itself is perceived as a threat to which the patient may react by overeating, by terminating treatment, or by becoming more severely disturbed for a time. In fact, all three possibilities have obtained in individual cases.

Most patients have gained weight during their first few months in the group. Eight of ten gained during the first month, six during the second and seven during the third. Of six patients who completed six months in the group, four gained weight during this period. After two years, only two of the five patients in the group had lost a significant amount of weight and both of these were still superobese. Two years of group therapy, then, was less than successful in helping this small number of individuals maintain a diet.

That the superobese female referred for group psychotherapy is tenuously motivated for treatment can be attested by the fact that of the ten patients so far referred, five have terminated therapy prematurely. One patient left because she felt "insulted" by the group; one because she felt she was "getting nowhere"; and another because she felt she had

gained so much insight about herself that she no longer required treatment (a "flight into health"). A therapeutic dilemma is how to chip away at the denial which obfuscates the patient's intrapsychic conflicts without evoking too much anxiety for the patient to tolerate.

Treatment not only mobilizes anxiety but also exacerbates those symptoms which bind anxiety. Thus, the patient in her first half year of therapy will probably gain weight and feel worse. Even so, she may recognize that she is making gains in other areas, such as in her marital adjustment; she may have faith in the doctors or the institution;²² or she may be, as one patient commented, "at the end of the line" of unsuccessful attempts to lose weight and consolidate the loss. Obviously, whether she stays in treatment or quits is a kind of algebraic sum of the above, and other, factors. It is our feeling, after Hacker,⁹ that the patient's motivation for treatment should be dealt with directly and if necessary, repeatedly, in the group sessions as another manifestation of resistance that needs to be systematically clarified, analyzed and worked through.

It has been our observation that psychological change occurs excruciatingly slowly in the typical extremely obese patient. Between six and 18 months, the patient's symptoms and anxiety tend to diminish. During this phase of treatment, as she becomes somewhat more committed to psychotherapy, she may become more cognizant of her interpersonal difficulties, more appropriate and comfortable in her interaction with therapists and other group members, and gain more insight about the development of her problems.

Change in the individual patient is gradually reflected in group process. Discussion becomes animated as the patients talk more to one another and less to the therapists, and as they become less inhibited in expressing anger.

As her reality testing improves, the superobese patient may take action to ameliorate her troubles, such as by getting a job to solve a financial problem. Despite these signs of improvement, maintaining a diet does not appear to get much easier. The patient grudgingly accepts the notion that dieting is hard work. Her rationalizations about her food intake begin to give way to the recognition that she sheds pounds when she eats less; she is forced to consider, perhaps for the first time, whether she really wants (or is emotionally ready) to lose weight. Follow-up psychological testing (MMPI, DAP) tends to confirm the above clinical impression (e.g., personality scale elevations on the MMPI diminish, figure drawings become more differentiated).

In summary, progress in group psychotherapy with extremely obese females is not unlike group therapy

generally, except that it is routinely jeopardized by inadequate motivation and that "movement" is greatly attenuated. Progress is signalled not by weight loss but by a diminution of psychic symptoms and an improvement in life adjustment.

Conclusions

Twenty-eight Minnesota Multiphasic Personality Inventories, 21 Shipley Hartford Institute of Living examinations, 26 Food Attitude Scales, 20 Draw-a-Person tests, and 26 Biographical Data Sheets were administered and scored. Although their mean MMPI profile fit no known actuarial code, superobese females were more likely to demonstrate psychopathology as manifested by MMPI personality scale elevations than a control population. An analysis of the superobese mean MMPI profile was performed by an automated technique and the computer "print-out" was presented. The Shipley IQ and CQ results indicated that neither a deficit in general intelligence nor an impairment in abstract thinking could account for the development of extreme obesity in the group as a whole. FAS results showed our subjects held negative or relatively unpleasant attitudes toward food. It was inferred from the DAP productions that many of the subjects demonstrated disturbances in body-image and sexual identification and that the drawings reflected immaturity and dependency. The BDS suggested that the subjects often experienced their early years as unpleasant and that level of formal education did not appear to be a significant factor in the development of corpulence. They also admitted a high incidence of physical complaints and hospital admissions.

Developmental histories accreted over 27 months of group psychotherapy indicated that many of the subjects suffered an impairment of "individuation" as a result of perturbed early object relationships and that learning in the formative years played a role in the pathogenesis of food-intake dyscontrol. Group psychotherapy was jeopardized and not infrequently terminated because of inadequate treatment motivation. Progress in therapy was very slow and signalled not by weight loss but by an improvement in life adjustment.

The authors wish to express their appreciation to Dr. Robert E. Bolinger for his support and encouragement of this research.

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Student-Patient Orientation

Medical Student Orientation Toward the Organically Ill Patient

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IN THE COURSE of their professional training and experience, medical students may be expected to develop more or less specific patterns of values, expectations and personal reactions in regard to certain classes of patients. In particular, medical students appear to distinguish emotionally ill patients from organically ill patients, and to respond in relatively less favorable or accepting fashion to the emotionally ill. The psychological function of this bias as a defense against anxiety and some of the didactic problems associated with it have been previously discussed at length (Stoller and Geertsma). This study was the first phase of an experimental investigation into the general character of the attitudes held by a group of senior medical students toward the two classes of patients in question, the organically ill and the emotionally ill. The technique used was to ask the students to make Q-sort descriptions of an ideal patient, a typical organically ill patient, and a typical emotionally ill patient. In accordance with what were considered to be potentially meaningful aspects of patients' behavior toward their doctors, the Q-statements were constructed to sample possible attitudes of a patient toward his doctor, his treatment and his illness. Although correlations among each student's three Q-sorts confirmed the expectation that all the students in the sample were more favorably disposed toward organically ill patients than to emotionally ill patients, the variety of conceptions applied to each of these two patient classes offered further avenue for investigation. Accordingly, factor analytic studies of the Q-sorts were undertaken in order to determine those attitudes toward doctor, treatment and illness which were attributed by certain groups of students to the organically ill patient and to the emotionally ill patient. Since students' descriptions of such an ambiguous entity as a typical patient can be assumed to represent a projection of their own experience, the

common conceptions of a patient type derived by factor analysis should yield information about the values and defenses which are associated with these two patient classes.

A factor analysis of medical students' conceptions

This study reports a factor analysis of Q-sort descriptions given by 22 senior medical students of what they consider to be a typical organically ill patient. The Q-statements dealt with patients' attitudes toward their illness, their treatment and their doctor.

of the typical emotionally ill patient has already been reported (Geertsma, MacAndrew and Stoller). The present study involves an analysis of medical students' conceptions of the typical organically ill patient. The similarity of these two studies includes the use of the same subjects, the same Q-statements and the same general techniques of data collection and analysis.

Method

The subjects, Q-statements and method of sorting have elsewhere been described in detail (Geertsma, MacAndrew and Stoller). In brief, each of 22 senior medical students sorted 63 statements descriptive of patients into a specified 11-category distribution. Although each S originally described three types of patients, an ideal patient, a typical emotionally ill patient and typical organically ill patient, it is primarily the organically ill patient descriptions that concern us here.

The 22 descriptions of the organically ill patient were intercorrelated and the obtained correlation matrix factored by the centroid method. Four factors were extracted and rotated to an oblique simple structure solution. A factor array for each factor was then derived by calculating a weighted average of the Q-descriptions given by those Ss who were "pure"

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TABLE 1
ORIGINAL AND ROTATED FACTOR MATRICES
FOR ORGANICALLY ILL PATIENT SORTS

Sorter	Original Factors				h ²	Rotated Factors				
	I	II	III	IV		W	X	Y	Z	
1. ....	.41	.43	-.09	.21	.37	.52	.04	.03	-.15
2. ....	.49	.38	-.46	.24	.65	.58	.01	-.15	.10
3. ....	.60	-.36	.15	.23	.56	.05	.65	-.14	.08
4. ....	.75	.05	.03	-.02	.57	.16	.28	.19	.16
5. ....	.51	-.18	-.09	.22	.35	.17	.43	-.19	.13
6. ....	.61	-.43	.31	.21	.70	-.03	.73	-.08	.02
7. ....	.71	-.37	.08	.10	.66	-.02	.59	-.05	.23
8. ....	.47	.10	.17	-.05	.26	.09	.16	.24	.00
9. ....	.44	.33	.26	-.24	.43	.08	-.08	.52	-.06
10. ....	.43	.32	.21	-.32	.43	.01	-.14	.55	.02
11. ....	.65	.20	.22	-.19	.55	.08	.10	.45	.05
12. ....	.31	.14	-.57	-.07	.44	.18	-.16	-.08	.42
13. ....	.48	-.12	-.15	-.28	.35	-.17	.04	.20	.43
14. ....	.67	-.07	-.23	-.12	.52	.03	.17	.05	.41
15. ....	.39	-.17	.01	-.15	.20	-.14	.16	.13	.25
16.	-.11	.88	.00	.00	.79	.52	-.54	.31	-.41	
17. ....	.64	.11	.10	.13	.45	.28	.32	.10	-.03
18. ....	.58	.14	.21	.18	.43	.31	.34	.10	-.15
19. ....	.63	.14	-.53	.06	.70	.33	.07	-.10	.39
20. ....	.81	.23	.32	.08	.82	.32	.36	.31	-.15
21. ....	.78	.07	.14	.00	.63	.18	.33	.23	.08
22. ....	.88	-.05	-.09	-.22	.83	.01	.23	.28	.43

on a factor; the arrays for the four factors were based on N's of 2, 4, 4, and 3 respectively. These pure Ss were weighted proportional to their loadings on the primary factor pattern of the rotated factor matrix. It should be noted that although this weighting system utilized the primary factor pattern, the present results are reported in the reference vector system.

Results

The original centroid and rotated factors derived from the organically ill patient sorts are given in Table 1. The correlations (or direction cosines) among the reference vectors are shown in Table 2. Below are presented the eight highest and eight lowest statements for each factor array, followed by a summary of their respective characterizations of the typical organically ill patient.

The factors will subsequently be referred to as orientations toward the organically ill.

ORIENTATION W

Statement

Number Most Characteristic Statements

12. Wants much reassurance from his physician that his illness is not serious.

31. Overemotional and excessively worried about any possibility of serious aspects of his illness.
57. Would like to be told that there is nothing really wrong with him, that he needs rest or a vacation.
4. May be skeptical about the ability of a young physician.
9. Feels better just knowing that his physician is doing something for him.
58. Feels that his symptoms can be removed by the proper treatment and if his doctor fails it reflects the doctor's shortcomings.
23. Highly desirous of keeping his physician's friendship and respect.
6. Compares his physician with others he has

TABLE 2
DIRECTION COSINES BETWEEN
ROTATED VECTORS

	W	X	Y	Z
W	1.00			
X .....	.18	1.00		
Y	-.39	-.52	1.00	
Z	-.58	-.22	.07	1.00

heard about; tends to shop around for a doctor he likes.

Least Characteristic Statements

26. Obtains inward satisfaction from seeing his physician's treatment fail.
14. Seeks to give others the impression he has no symptoms at all.
61. Tries to find some humor or lightness in his situation.
40. Able to assess realistically his symptoms, their import and their treatment.
35. Acts as if he blames his illness on others.
52. Quick to want to try some unproven or even quack remedy he has heard about.
22. Inclined to be somewhat cynical and hesitant about his physician's recommendations.
62. Inclined to feel that his physician doesn't understand his case and is experimenting on him.

In Orientation W the organically ill patient is seen as extremely upset and concerned about his illness. This anxiety is associated with a strong dependence on his doctor, a dependence which places the responsibility for successful treatment directly on the doctor. Despite his wish for support and reassurance, despite his overt attempts to stay in his doctor's good graces, this patient covertly evaluates what is done for him and shops around for another doctor to see if he can do better elsewhere. In view of the emphasis on overt dependence and covert criticalness, this conceptualized patient can be characterized as the *anxious, passive-aggressive* patient.

ORIENTATION X

Statement

Number Most Characteristic Statements

17. Would find satisfaction in knowing that everything possible was done for him, even if his symptoms were not completely removed.
30. Can understand and accept the fact that his physician may not know exactly what's wrong with him.
48. Accepts appropriate responsibility for carrying out his treatment.
54. Wants to consult his physician before doing anything that he thinks may affect his symptoms.
40. Able to assess realistically his symptoms, their import and their treatment.
29. Would be satisfied with a reasonable therapeutic outcome.
21. Despite any fears he has, he wants to know what's really wrong with him.
3. Presents information about his personal life and feelings, his reactions to his symptoms and his fears and anxieties of various sorts.

Least Characteristic Statements

26. Obtains inward satisfaction from seeing his physician's treatment fail.

62. Inclined to feel that his physician doesn't understand his case and is experimenting on him.
45. Will only countenance a physician who relates to him on his own terms, even though this may exclude aspects of his case the doctor feels are very important.
38. Readily notes any signs that his treatment is not helping him.
51. Readily critical of his physician even though he doesn't express this directly.
10. May deliberately hide certain aspects of his illness and stress others.
22. Inclined to be somewhat cynical and hesitant about his physician's recommendations.
60. Apt to present vague, unspecific and changeable complaints.

Orientation X views the organically ill patient as rather unconditionally accepting of his doctor and his treatment. He is seen as uncritically responsive to what is done for him, and in addition is realistic, cooperative and undemanding. Briefly described, he is the *satisfied, accepting* patient.

ORIENTATION Y

Statement

Number Most Characteristic Statements

36. If one treatment program doesn't work he is ready to try another approach.
13. Makes more demands on others because of his illness.
20. Inclined to cling to his physician even though told that nothing more can be done for him.
43. Feels that his illness permits him to obtain considerations or concessions he ordinarily could not expect.
24. Has much confidence in the efficacy of pharmacological treatment of his illness.
49. Believes that ultimately his physician will find ways to treat him successfully.
15. Motivated to have his physician regard him as a good patient.
9. Feels better just knowing that his physician is doing something for him.

Least Characteristic Statements

26. Obtains inward satisfaction from seeing his physician's treatment fail.
22. Inclined to be somewhat cynical and hesitant about his physician's recommendations.
14. Seeks to give others the impression he has no symptoms at all.
33. Comforted by the fact that he is not as ill as many patients.
45. Will only countenance a physician who relates to him on his own terms even though this may exclude aspects of his case the doctor feels are very important.
59. Resists care that he realistically should have.
52. Quick to want to try unproven or even quack remedies he has heard about.

35. Acts as if he blames his illness on others.

The organically ill patient is characterized in Orientation Y as very much committed to treatment and to his doctor, in whom he has much confidence. He is a dependent, clinging patient who uses his illness to expand and enforce his demands on others. He can succinctly be described as the *passive-dependent* patient.

ORIENTATION Z

Statement
Number Most Characteristic Statements

- 33. Comforted by the fact that he is not as ill as many patients.
- 24. Has much confidence in the efficacy of pharmacological treatment of his illness.
- 9. Feels better just knowing that his physician is doing something for him.
- 32. Optimistic about the outcome of treatment.
- 34. Is likely to be happy with the successful aspects of his treatment and does not let other aspects bother him.
- 49. Believes that ultimately his physician will find ways to treat him successfully.
- 55. Grateful to his physician for any relief he obtains through treatment.
- 57. Would like to be told that there is nothing really wrong with him, that he needs a rest or a vacation.

Least Characteristic Statements

- 18. May not wholeheartedly want to get well.
- 26. Obtains inward satisfaction from seeing his physician's treatment fail.
- 41. Seeks special favors or attentions from his physician.
- 54. Wants to consult his physician before doing anything that he thinks may affect his symptoms.
- 60. Apt to present vague, unspecific and changeable complaints.
- 5. Tends to overdramatize and exaggerate his symptoms.
- 39. Inclined to be passive about doing anything for himself that will aid the treatment.
- 22. Inclined to be somewhat cynical and hesitant about his physician's recommendations.

In Orientation Z the organically ill patient is described as tending to minimize his illness and his concerns about it. He is optimistic about treatment, confident in his physician and implicitly unwilling to countenance the possibility of harm or danger from his illness. He may be epitomized as the *optimistic, denying* patient.

In order to evaluate the overall attitude of favor or disfavor associated with the above orientations, the array for each factor was correlated with the average

of the ideal patient sorts given by the same Ss. Table 3 shows these correlations.

TABLE 3 CORRELATIONS BETWEEN THE FOUR ORIENTATIONS AND THE AVERAGE IDEAL PATIENT SORT		
Orientation	r	N
W .....	.14	63
X .....	.86**	63
Y .....	.40*	63
Z .....	.42*	63

* Significantly different from zero beyond the .01 level.
** Significantly different from zero beyond the .001 level.

Since Ss' descriptions of the typical emotionally ill patient have previously been factor analyzed, it was possible to intercorrelate factor loadings on the present orientations and loadings on the orientations toward the emotionally ill patient. In order to facilitate the interpretation of Table 4, which gives the aforementioned correlations, a summary of the content of the four orientations toward the emotionally ill patient follows.

- (A) Undemanding toward his doctor, passive in regard to treatment and resistive to getting well.
- (B) Dependent and primarily using his illness to obtain secondary gain.
- (C) Aggressively demanding toward all, and especially critical and untrusting toward his doctor.
- (D) Trusting, compliant and extremely dependent toward his doctor.

Discussion

Compared with the descriptions of the typical emotionally ill patient given by these same Ss, the above characterizations of the typical organically ill patient

TABLE 4 CORRELATIONS BETWEEN LOADINGS ON ORIENTATIONS TOWARD THE EMOTIONALLY ILL AND ORIENTATIONS TOWARD THE ORGANICALLY ILL (N = 22 for all correlations)					
		Emotionally Ill			
		A	B	C	D
Organically Ill	W	-.26	.21	.22	.04
	X .....	.07	-.28	.06	-.14
	Y .....	.07	.44*	-.52*	.23
	Z	-.03	-.41	.12	.16

* Significantly different from zero beyond the .05 level.

are generally positive in their terms and implications. *Table 3* indicates that three of the four orientations correlate significantly with *Ss'* common conception of the ideal patient. In all four orientations, though less so for W, the organically ill patient is viewed as friendly to his doctor and cooperative in treatment. The acute angles between references axes probably reflect this positive caste to the descriptions of the organically ill patient.

The four orientations toward the organically ill are clearly distinguishable in terms of their eight highest and lowest statements. It is the organically ill patient's imputed attitudes toward his doctor and toward his illness which vary most among the orientations. From these imputed characteristics and the correlations of *Tables 3* and *4*, a further evaluation can be made of the way each of the four orientations views the organically ill patient.

Orientation W suggests a sensitivity both to the patient's anxiety regarding his illness, and to his holding the doctor responsible for helping him. This is an uncomfortable sensitivity, as is indicated by the low correlation between this orientation and the average ideal patient sort. Despite the patient's superficial helplessness, faith and trust, it is his implicit evaluation of the doctor's ability to give him what he wants and his potentiality for rejecting the doctor that seems to matter here. We may speculate that in this orientation the doctor has some doubts about his ability to satisfy organically ill patients, and thus regards such patients the least favorably of the four orientations presented here.

Orientation X correlates so highly with the average ideal patient sort as to seem to idealize the organically ill patient. Essentially, this orientation regards such patients as very unlikely to provoke anxiety or guilt in the doctor. This rather inappropriate calm and acceptance attributed to the patient suggests that this orientation strives to deny or suppress all concern about such patients. We might expect students with this orientation to feel secure with these patients, secure because of a particular, probably defensive, avoidance of attention to the real feelings of patients or the nature of the doctor-patient relationship.

Orientation Y emphasizes the organically ill patient's dependent strivings and at the same time, from *Table 3*, seems favorably disposed toward such patients. Whatever they may interpret to be dependency is probably not threatening to students with this orientation. As seen in *Table 4*, *Ss'* loadings on this orientation are positively related to their loadings on Orientation B toward the emotionally ill patient, and negatively related to their loadings on Orientation C toward the emotionally ill patient. Thus, this orienta-

tion is not associated (i.e., is negatively associated) with the extremely unfavorable attitude toward emotionally ill patients held by C, but tends to view the emotionally ill patient in only mildly negative fashion as dependently exploiting his symptoms for purposes of secondary gain. Orientation Y appears to be especially sensitive to dependence in patients and not especially uncomfortable with this aspect of the doctor-patient relationship.

The positive correlation between Orientation Z and the average ideal patient sort suggests that Z is most comfortable with the organically ill patient's denial of his concerns about his illness. We may speculate that this represents a proclivity to help patients minimize their anxiety. Whereas Orientation X seems to ignore or deny the patient's (and the doctor's) anxiety, A tends to be concerned enough about the patient's anxiety to want him to defend against it by denial and minimization. Orientation Z, then, appears to be more vulnerable to patient-induced anxiety than is X, even though both of these orientations imply considerable defensiveness and lack of sensitivity in the doctor-patient relationship.

It is interesting that Orientation C, which characterizes the typical emotionally ill patient as distrustful and aggressively demanding, is negatively related to Orientation Y's view of the organically ill patient as passive-dependent. Why should viewing the emotionally ill patient in the negative terms of C tend to restrict the view of the typical organically ill patient to W, X and Z? And why should describing the organically ill patient as passive-dependent be related to describing the emotionally ill patient as overly dependent and passively demanding? Although further checking of such results on other populations of students is necessary, we can speculate about these relationships. Awareness of the dependent wishes of patients in the doctor-patient relationship may make it difficult for students to view the negative feelings of patients as having much force. Put somewhat differently, perhaps recognition of a patient's dependent wishes helps the student-physician to discount the force of the same patient's negative feelings toward him. If the emotionally ill patient is seen as having strong negative feelings, then no ability to see or take comfort from a patient's passive dependence is implied, so that the student also misses this aspect of the organically ill patient. Another line of thought is that viewing patients as passive-dependent implies a secure, accepting and not easily threatened doctor whereas the negative image Orientation C gives of the emotionally ill reveals a threatened, rejecting doctor. The negative correlation of Y and C could then be due to the expected inverse relationship between a measure of secure acceptance of patients

and a measure of potentiality for a threatened rejection of patients.

Summary

This study reports a factor analysis of Q-sort descriptions given by 22 senior medical students of what they consider to be a typical organically ill patient. The Q-statements dealt with patients' attitudes toward their illness, their treatment and their doctor. Four factors, here called orientations toward the organically ill, were derived. They characterized the organically ill patient as follows:

W. anxious about his illness, overtly passive-dependent and implicitly critical of his doctor.

X. essentially satisfied and accepting of doctor, treatment and illness.

Y. primarily a passive-dependent patient, much committed to treatment and to his doctor.

Z. an accepting, optimistic patient who utilizes denial and minimization to handle anxiety.

These orientations were discussed in terms of their implied attitudes toward organically ill patients, particularly in regard to the doctor-patient relationship and the doctor's sensitivity to the patient's feelings. This presentation was intended to provide a sample of the range of possible attitudes which medical students may hold toward organically ill patients.

The correlation matrix, transformation matrix and item-population can be obtained from the authors on request.

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Extreme Obesity

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Cosmetic Surgery

(Continued from page 133)

through social rejection and not through any inherent incapacity on the part of the individual. Frustration is almost inevitable.

Unless personally affected by such a disability it is difficult to understand the emotional impact of such frustration. It has been said that "a large and noticeable defect offers no inconvenience or psychological reaction, no hinderance to our success or well being when on someone else's face."³

Sarcastic as it is, this statement tends to summarize the response of society to the esthetic deformity. Since society tends to deny its prejudices, those affected with esthetic deformity soon become well aware of hostile social attitudes but are unable to combat these prejudices.

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Continuing Dialogue

Toward a Model of Psychiatric Clerkship

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Introduction

TEACHING OF PSYCHIATRY to medical students at the undergraduate level can almost be considered as a fact of modern medical education. The emphasis given to psychiatry in the medical curriculum of four years differs from one school to the other. What the medical students should be taught with regard to psychiatry during these four years is eloquently discussed by George Engel in his book, *Psychological Development in Health and Disease*, a position with which I am in agreement. How to translate these objectives into the day-to-day teaching of psychiatry at the clerkship level is the focus of this paper.

Description of the Study

In 1962, the University of Kansas Medical Center revised the curriculum and allotted to the Department of Psychiatry 15 two-hour sessions in the sophomore year and an eight-week full time clerkship in the senior year. In the freshman and junior years no time was allotted for the teaching of psychiatry. The Department, however, participated by lecturing for two hours on psychiatric examination as a part of the course of physical diagnosis given to sophomore students. A modus operandi had to be developed, therefore, to get the maximum mileage out of the time allotted for the teaching of psychiatry.

The psychiatric clerks came on the service in their senior year with varying degrees of competence and information with regard to clinical medicine depending upon where in the clinical rotation the psychiatric clerkship happened to fall; and also an affective set with regard to the discipline of psychiatry either of a positive or negative nature. When they arrived on the service their time was utilized in the following manner. The entire group (12 to 18 students) was divided into two, one group worked in the outpatient clinic at the K. U. Medical Center in the morning and on the inpatient service at the Veterans Administration Hospital, Kansas City, Missouri, in the after-

noon, and the other group alternated. In both these places the students had exposure to adult psychiatry. Approximately two to three students were assigned to the Department of Child Psychiatry for their inpatient experience, in case they expressed interest in this area, in lieu of the V.A. Hospital inpatient assignment.

Education, to my mind, is a continuing dialogue between those who teach and those who are taught. A frank and forthright discussion on the part of these two participants to vitalize the teaching process will enable us to come to grips with the really complex issues of psychiatric education at the clerkship level. The American Association of Medical Colleges describes the goal of undergraduate education as follows: "This period should provide an opportunity for the student to learn the fundamental principles applicable to the whole body of medical knowledge, establish habits of reason and critical judgment of evidence and *experience*, and develop an ability to use these principles and judgments wisely in solving the problems of health and disease." This paper is a translation of this thought as a working reality at the psychiatric clerkship level.

In the outpatient clinic the student had approximately four to six patients for whose treatment he was responsible under very close individual supervision two hours a week by a psychiatrist. He was also responsible for the administration of a battery of psychological tests; i.e., Biographical Data Sheet, Sentence Completion Test, MMPI, and Shipley-Hartford Scale. He had opportunity to obtain assistance from the psychologist and the social worker of the clinic. The director of the outpatient clinic had the administrative responsibility. Since the crux of the management of dealing with psychiatric patients lies in the art of listening and talking to the patient, once a week a staff psychiatrist interviewed a patient on a

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closed circuit television for approximately 20 minutes to a half hour and then discussed the interview with the group is an attempt to demonstrate the interviewing techniques he used with that particular patient. The staff psychiatrist who interviewed the patient was, in most cases, the individual supervisor of the student and, therefore, during the eight-week period, each student had opportunity to see different psychiatrists interview different patients and thus obtain some appreciation of the subtleties and complexities of the doctor-patient relationship not only as determined by the patient's psychopathology but also by the personality of the psychiatrist and his theoretical orientation.

The inpatient service, which was part of a general hospital, had over 60 patients who were veterans and who, in the judgment of the admitting physicians, were persons likely to respond to psychiatric treatment within three to six months. Each student had about four to six such patients. The ward physician worked closely with the student, supervising his work and medical procedures. In addition, each student had individual supervision for one hour a week from the psychiatrist and also obtained assistance from the psychologist and social worker on an informal basis. On the inpatient service the student had an opportunity to see the kinds of patients that need hospitalization, the therapeutic modalities used and the results that could be expected from such management. The student was also required to participate in chart rounds and therapeutic community meetings that took place on the ward. Every week a student presented a patient he had worked up to a case conference, the emphasis of which was to teach the student how to organize psychiatric data and present it in a coherent logical way (as illustrated in the Manual²), how psychodynamic considerations are reflected in the patient's current psychopathologic manifestations. The student was graded on his performance.

The didactic portion of the clerkship was handled in the following manner. Each group of students received two, one and one-half hour sessions a week during which time information was imparted to them with regard to psychiatric examination, doctor-patient relationship, the various psychiatric syndromes, treatments in psychiatry, and psychiatry and law. At the end of the course a written examination was given to the students in which 75 per cent was a passing grade. After the examination the answers expected by the faculty were discussed with the group as well as on an individual basis in an effort to indicate to the student why he was graded the way he was. It will be noticed, therefore, that the examination was used not only as a means of ascertaining whether the student had acquired "Core" information but also as a teaching device.

Discussion

It has been stated that the doctor-patient relationship is not only the art of medicine, it is the heart of medicine. This concept is kept in mind in the clerkship structure just described at all times and is particularly brought into sharp focus during the weekly closed circuit television exercises and the weekly case conferences on the inpatient service. Since the doctor-patient relationship is a proposition full of personal equation between the interacting persons by providing the student a situation to see different psychiatrists interview different patients he is provided an opportunity to appreciate in some depth this very real but elusive phenomenon in medical practice.

It is one of the paradoxes of present medical education that all through the four years of medical school the student is taught how to be a student and then at the end of that period when he graduates he is expected to be a physician. How this sudden metamorphosis is supposed to occur is unclear. The structure in the outpatient clinic tends to lessen this very paradox. It is understandable that the student experiences considerable anxiety; however, since he is under supervision he can be helped and supported during this trying period. It is heartening to note that the student may initially resent this responsibility placed upon him, but by the end of the clerkship he begins to appreciate the meaning of this arrangement. One student commented, "I felt as if I was doing my own private practice with the ready availability of consultation when I needed it." Another student stated, "Students like to be saddled with responsibility although they will do everything they can to get out of it, if permitted." In the outpatient clinic the student had an opportunity to translate the thought of Francis Peabody who said, "The secret of the care of the patient is in caring for the patient." The student by being regular and punctual for the appointments with his patients, handling their telephone calls, answering their letters in a concerned and responsible manner, is able to actualize the "caring for the patient" concept.

In the small group discussion students are informed ahead of time the topic which will be discussed, for which they are expected to come prepared. The session is utilized, in addition to clarifying information and concepts, to impart a method, or better still, a point of view rather than merely learning of facts, for in my judgment facts and information are often forgotten but the method is remembered. Henry Van Dyke expressed it well when he said, "Knowledge may be gained from books, but the love of knowledge is transmitted only by personal contact." The small group discussion setting provides an opportunity for such a process to occur. In these discussions the admonition of Dr. Chandler is repeatedly emphasized,

"Of all the lessons which a young man entering upon the profession of medicine needs to learn, this is perhaps the first: that he should resist the fascination of doctoring an hypothesis till he has won the privilege of such studies by honest labor and a faithful pursuit of new and useful knowledge." No book, authority or a psychiatric point of view is exempt from critical analysis in these discussion groups regardless of their olympian eminence. The discussion is mainly addressed to the kinds of problems, situations and issues which a general practitioner will encounter in his daily work with patients.

On the inpatient service in the therapeutic community meetings the student is exposed to the psychiatrically relevant interpersonal situations as they occur between the patients themselves, and between the patient and the various members of the therapeutic team, to observe the phenomenon at first hand and thereby obtain a glimpse of the functioning of the human being in interpersonal context and as a corollary obtain an increased appreciation of their own

personality functioning, an awareness which can importantly catalyze the learning process.

It will be noticed that the emphasis of the clerkship is not to prove anything to the student, but to present data, or cause this data of human concern and interest to emerge, thereby providing for him an experience whether it emanates from his patients, from within himself or from the faculty.

An important aspect of the process of learning is the utilization of the principle of feedback. This principle is utilized both at the personal level—that is, in the individual supervisory relationship—and at an administrative level by grading the student at the end of the conference, during the midterm of the clerkship, or his score in the written examination, so that his performance is brought to his notice before he leaves the clerkship, in the hope he may take appropriate measures.

An important use of the principle of feedback is its application in reverse, whereby the faculty is provided with data as to the effectiveness of its teaching operations. Therefore, at the end of the clerkship students

TABLE 1

The following alphabetical categories encompass your experience on the service, please make a narrative statement covering *positive* and *negative* aspects of each category on a ten point scale, inserting the figure within brackets provided.

<i>Unsatisfactory</i>		<i>Less Than</i>		<i>Satisfactory</i>		<i>Better Than</i>		<i>Superior</i>	
1	2	3	4	5	6	7	8	9	10

NOTE: The figure in the bracket and the accompanying statement(s) are made by the same student. The various statements, however, are made by different students. It is hoped that the statements selected will reflect the feel and the flavour of the total sample.

Outpatient Clinic at K. U. Medical Center

Closed Circuit TV	(10)	Helped me to become more proficient in interview with the patient.
	(4)	Too often the interviewer was not adept enough to teach by "precept" and not poor enough to teach by "mistakes."
Case Material	(10)	All patients I had were excellent. I can find no complaints in this area.
	(6)	My "new" patients were more fun to work with than the carry-overs.
Social Service Faculty	(6)	Gives a different point of view in seeing patients' problems.
	(3)	Too much jargon. Too little interest in the home situation. Too much interest in glib diagnostics.
Psychology Faculty	(7)	I thought there was proper amount of emphasis on psychology.
	(3)	I remain uncertain as to the exact position of this group.
Psychiatric Faculty	(9)	Excellent.
(Individual Supervision)	(5)	Being somewhat paranoid, I hate feeling of being psychoanalyzed continuously by those inviting criticism and then reacting poorly to same.

TABLE 2
IN-PATIENT SERVICE AT V.A. HOSPITAL

Case Conference	(10)	I thought they were well organized.
	(6)	Better for the presenter than for those presented to.
Ward Conferences	(6)	Practical information obtained here was good.
	(5)	Not really student-oriented and understandably so.
Case Material	(9)	Lot to be learned from these human textbooks, if you don't look at them as "case summary hurdles"—I did.
	(5)	Everyone is schizophrenic until proven otherwise.
Social Service Faculty	(9)	Cooperative and contributes to case management—easy to contact.
	(5)	Gained some pertinent information but too late to do much good.
Psychology Faculty	(7)	Helpful.
	(6)	Very little contact, but reports are well written and give corroborative information.
Psychiatric Faculty	(9)	Good teacher, especially with interview techniques. Helpful with understanding psychodynamics.
	(6)	He was frequently late, he answered my questions, but did not extend.

TABLE 3
DIDACTIC EXPERIENCE

Reading Group	(10)	Very helpful—course would be seriously impaired without it.
	(7)	These group lectures are the best method of increasing knowledge of the scope of psychiatry.

TABLE 4

Please indicate your general satisfaction with the clerkship (circle one of the digits below). 0 indicates minimum satisfaction. 4 indicates maximum satisfaction.

	0	1	2	3	4		
Clerkship Period	Number of Students					Rating	Average
9/16/62-12/5/62	15					3-3-3-2-1-3-3-3-3-3-4-3-3-3	2.87
12/6/62-3/8/63	12					3-3-4-4-3-2-3-2-4-4-2-2	3.00
3/11/63-5/30/63	17					3-4-3-4-2-3-3-4-3-3-3-4-3-4-4-2	3.23
8/6/63-10/1/63	13					3-3-3-3-4-4-4-4-3-3-3-2-4	3.31
10/2/63-11/27/63	17					4-3-2-4-3-3-3-3-4-2-3-4-3-3-3-4-3	3.18
12/2/63-2/6/64	13					2-3-3-3-2-3-3-2-3-3-4-3-1	2.69
2/7/64-4/2/64	9					4-4-4-3-4-3-4-4-3	3.66
4/3/64-5/29/64	14					4-4-2-3-3-2-3-3-3-3-3-2-4	3.00
6/8/64-8/4/64	15					4-3-4-3-3-3-2-4-1½-2-3-2-3-3-3	2.90
8/5/64-10/2/64	17					3-4-3-3-4-3-4-3-4-3-3-4-4-3-1-4	3.29
10/3/64-11/30/64	18					3-3-3-3-3-3-2-3-3-3-4-3-4-2-4-3-3-3	3.06
12/1/64-2/5/65	19					4-4-3-3-4-3-2-3-3-3-3-3-3-3-3-4-3-4	3.21
2/8/65-4/3/65	17					3-3-3-4-3-3-3-4-3-3-3-3-2-2-3-3-3	3.00

are requested to fill out a questionnaire with regard to their experience on the service assigning a numerical grade to the various aspects of their experience, as well as making narrative statements regarding the positive or negative aspects of that experience as presented in the following tables.

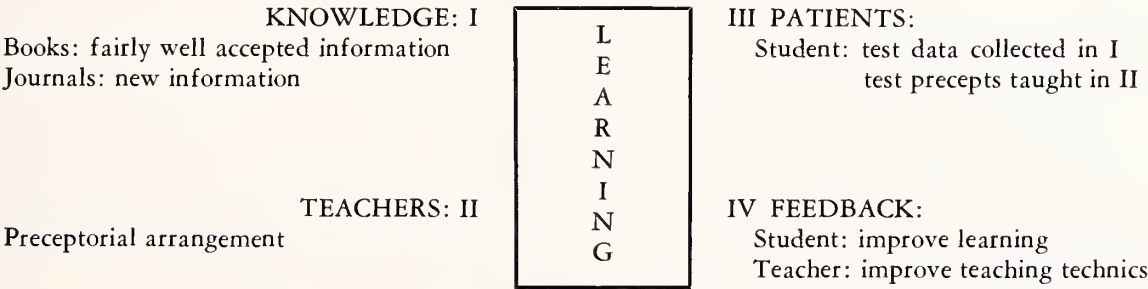
The impressions and conclusions emerging from these questionnaires are implemented within the limitations of reality logistics with the subsequent group in a constant endeavor to improve the program to fulfill its objectives.

The "model" of the psychiatric clerkship as implemented at the K. U. Medical Center could be schematically represented as what I call "Four Pillars of Learning" as depicted in the diagram below.

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MODEL OF PSYCHIATRIC CLERKSHIP
FOUR PILLARS OF LEARNING



CHANGES OF ADDRESS

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Community-Side Teaching . . .

. . . In Comprehensive Medicine—Reactions of Nursing and Medical Students to Group Visits in the Home

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Introduction

IN A LECTURE at Johns Hopkins Hospital in 1893 on "Medicine of Aristotle," Plato was portrayed as an idealist with a philosophy of the School of Dogmatism. A lecture on typhoid by him, it was predicted, would have been one in which he would affirm the temperature curve never failed, and spots appeared and disappeared at exactly the right moment. Aristotle, on the other hand, was portrayed as a realist of the School of Empiricism. It was predicted that he would have been at the bedside explaining that signs and symptoms differ from the textbook, and that it was hard to classify them. Teachers from both schools enriched now by exploding knowledge in the applicable sciences still exist, but their spheres of interest and areas for teaching are changing.

Teachers are in an unprecedented period of self reappraisal, definition of objectives and experimentation. Since World War II the impact of changing times has been felt in a number of ways: (1) change in the nature of patients available for teaching and patterns of disease; (2) growth in knowledge and increase in specialization; (3) increase in research activities with comparable increase in financial support especially from the federal government; (4) growth and strengthening of social and behavioral sciences; (5) increasing concern with the need to define attitudes, responsibilities and educational needs of physicians and nurses of the future.

The major defects in health care today would appear to be the imperfect application of modern scientific medicine and the very process itself of teaching nurses and physicians. The United States has the best informed practitioners providing the highest overall level of health care in the world, yet the consumers (the patients) are dissatisfied with the delivery of care.

The prevailing health problems which exist today are chronic and complex necessitating care by many

types of personnel and in numerous settings in the community. Just think about the various types of personnel and the health-welfare resources that are marshalled into action today for the birth and care of the premature baby; the mentally retarded child; the 16-year-old traumatically injured in an automobile accident; the 45-year-old business executive with

Comprehensive medicine implies the mobilization of all appropriate available resources for the total care of the patient. Implicit in this concept is the recognition of the importance of understanding factors which influence the relationships between health personnel and the patient and his family, and the communication that takes place between them.

The faculties at the University of Kansas Medical Center in the Departments of Nursing, Preventive Medicine and Community Health have introduced a program of teaching in which the nursing and medical student has a learning experience with a mutual patient and his family in his home.

myocardial infarction; the 40-year-old mother terminally ill with cancer, or the 80-year-old with a fractured hip and multiple degenerative conditions. Medical care is no longer limited to "doctoring" in a single setting but includes the services of members of an increasing variety of allied professions and disciplines.

Comprehensive Medicine and Health Care

Comprehensive medicine implies the mobilization of all appropriate available resources for the total care of the patient. It implies a primary concern for the patient (rather than the disease) and a consideration of all significant factors that affect his health. Implicit in this concept is the recognition of the im-

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portance of understanding factors which influence the relationships between health personnel and the patient and his family, and the communication that takes place between them. Interest in this concept has resulted from the increase in specialists inevitable with the rapid expansion of medical knowledge in addition to the increasing amount of knowledge from other fields which has been shown to be applicable to the care of people. In short, comprehensive medicine is an attempt to apply all available knowledge—be it of pathology, pharmacology, psychology or sociology to the maintenance of health and the diagnosis, treatment and rehabilitation of the sick or disabled patient and family.

Teaching

How does a faculty go about teaching such a global concept as comprehensive care with the fundamental object of such education the creation of good practitioners, be they physicians or nurses? This is a problem disturbing schools of medicine and nursing today; both proponents and antagonists exist in faculties for any change of approach to teaching. It should be assumed, however, that teachers have always struggled with appropriate methodology in the natural history of education as our philosophy and objectives have changed. Progressive areas of diagnosis and treatment have passed from being primarily symptom centered, secondly disease centered, with the use of authoritarian didactic lectures and laboratory instruction. More lately an Era of Clinical Science has developed which is patient-centered with the diagnosis and treatment of the "whole" patient the primary focus. To provide comprehensive care, health personnel need to become knowledgeable of the life, social and cultural factors which are involved in the fullest delivery of satisfactory health practice by the integrated multidisciplinary team. A physician and nurse require knowledge and understanding of the patient's problems which may relate to disease and to the patient as a person and as a member of society.

Community-Side Teaching in the Home

The faculties at the University of Kansas Medical Center in the Departments of Nursing and Preventive Medicine and Community Health have introduced this fourth dimension by initiation of a program of teaching in the community for both students in nursing and medicine. The program has been described in detail elsewhere but briefly it entails the nursing and medical student having a learning experience with a mutual patient and his family in his home. The learning program has been scheduled in three primary activities: (1) a series of seminars involving families known to both nursing and medical students, (2) a chart conference at which a multidis-

ciplinary faculty is present and in which the student nurses confer with the medical students, reviewing the progress of the patient and family during the week, and (3) a home visit to the family by the students in groups. A staff member, one or two student nurses and one or two medical students may visit two homes in the same afternoon. At the completion of the home visits, students are expected to collaborate to write progress notes in the charts. The patterns of the planned seminars and all incidental discussions center around:

(1) Review of the basic science pertinent to a particular patient's underlying disease and symptomatology at the cellular level.

(2) Consideration of the problems of causation and treatment to the social and economic factors inherent in the patient and family.

(3) Discussion of the various agencies in the community which are affected by the patient's illness and which may provide some aid in the management of his and his family's problems.

The faculties believe (1) the more students learn from patients through their own observations, the better practitioners they will be, and (2) the earlier students are introduced to the patient in his natural environment and to each other's disciplines, the more likely they will be to provide eventually comprehensive and scientific care.

Discussion of Questions Raised

Teaching comprehensive health care and the use of community-side teaching with groups in the home have raised questions and charges including the following:

(1) Are comprehensive health care teaching programs unscientific and merely encouraged application of compassion, humanitarianism and common sense? An answer summarized by Peter Lee follows:

"It merely intends that valid and applicable knowledge from the areas (preventive medicine, sociology and psychology) be applied to the improvement of care. Humanitarianism needs no defense in medicine. Compassion and humanitarian feelings for the welfare and comfort of the patient are not synonymous with an understanding of the social and psychological factors involved in illness. Failure to understand and recognize these influences is unscientific in the first place and it can be detrimental to the well being of the patient in spite of most sympathetic and humanitarian feelings on the part of the physician (or nurse). No rational person wishes to lessen the standard of care that has resulted from the marriage of science and medicine." Antipathy to such a program can be justified if the program is not carefully planned, however, and if the faculty is not competent. In the experimental program as described it is merely another technique to prepare medical and nursing practitioners by giving them, as stu-

dents, an early experience in a setting outside the University hospital environment in the application of the principles of scientific medicine encompassing both the physical and behavioral sciences.

(2) Does community-side teaching with the group in the home really offer potentials for effective communication?

This setting for group teaching is a major change for students, staff and patients and their families. Staff and students are accustomed to patients coming to the hospital as inpatients or outpatients. It is the patient who is expected to accommodate to the institution and to cooperate with the care routines directed by hospital personnel. He is expected to learn the interpersonal relationships, the culture, and environment of the hospital with its strange lingo, sounds, odors and procedures. The patient expects to be interviewed, examined, talked to and worked upon by many in a University teaching center. The family plays an accessory role with members usually coming in at stated visiting hours.

In the home the patient and family are in command. It is the student and the faculty who must understand and accommodate to the family's interpersonal relationships, culture and environmental factors.

The home is the domain of the patient and his family. Any intrusion is with their invitation and consent. The private physician has long been privileged to have a close relationship with his patients and their families. This also applies to nurses from visiting nurse associations and other community nurse employing agencies.

In a university teaching center, student and faculty participate with patients on a one-to-one basis as well as in group teaching rounds at the bedside and clinical ward conferences. In the home, health personnel have functioned almost exclusively on a one-to-one basis.

The questions raised by this program described are: (1) Can teaching rounds and clinic conferences be held in the home? (2) Is the home environment conducive to group-family communication? (3) How do students react to group visits to *their* patient and family in the home?

The following is a report of an attempt to obtain answers to these questions beyond consensus from conversations with students. The method used was an administration of a scale of 27 statements to which the students were to react by checking agree, disagree,

RESULTS

		<i>Agree</i>	<i>Disagree</i>	<i>Undecided</i>
Patients are pleased or flattered to be visited at home by a group of doctors, nurses and health helping personnel.	First Year Medical Students	20	1	5
	Senior Nursing Students	14	2	6
It is just as easy for the doctor and nurse to get to know the patient and family if they see them together.	Medical Students	10	9	7
	Nursing Students	7	10	5
When a doctor or nurse sees a patient in the home he or she gets to know and understand the patient better than in the hospital.	Medical Students	22	1	3
	Nursing Students	22	—	—
Most patients are seen by groups of doctors and health people in the hospital where doctors talk more about their diseases and less about their troubles in caring for their disease.	Medical Students	13	2	10 (1—no answer)
	Nursing Students	22	—	—
Patients like to know their care is known and discussed by a group of doctors, nurses and other health workers.	Medical Students	17	1	8
	Nursing Students	16	2	4
Most patients and families are glad to help in the learning experiences of young doctors.	Medical Students	13	—	12 (1—no answer)
	Nursing Students	12	4	6

		<i>Agree</i>	<i>Disagree</i>	<i>Undecided</i>
When a health worker visits a home, the patient expects the worker to help the rest of the family as well as him.	Medical Students	5	5	16
	Nursing Students	11	6	5
Most patients and families identify the staff from the students.	Medical Students	10	8	8
	Nursing Students	8	13	— (1—no answer)
Most patients and families relate to our student nurses and/or doctors even if a group visits.	Medical Students	14	2	10
	Nursing Students	17	4	1
It is never possible to get as much encouragement, support and understanding from your doctor or nurse when he or she is in a group.	Medical Students	4	15	6 (1—no answer)
	Nursing Students	5	11	6
Patients can talk with a whole group of health personnel about every day management of care but in deeply confidential matters, they can talk only on a one-to-one basis.	Medical Students	19	5	2
	Nursing Students	22	—	—
If there is stress in the family, the patient can best talk out his problem on a one-to-one basis with a staff member and not with a student.	Medical Students	9	9	8
	Nursing Students	1	17	4
Patients know that fate determines if he will improve or recover in spite of medical care by one or a group.	Medical Students	1	19	6
	Nursing Students	1	18	3

or undecided. Twenty-two nursing and 26 medical students participated.

Comment

The students generally felt that their families were pleased to be visited by a group; that their care was known and discussed by a group to help in the learning experiences. The students felt that they learn to know the patient better in the home than in the hospital, but they expressed some doubt as to whether it was easier if they were in a group. The nursing students reflected strong ego strength in two regards: that their families related to them even if they were in a group, and that the patient expected help for the rest of the family as well as himself. Although they felt confidential matters should be discussed on a one-to-one basis, the medical students were not as decided as to who should do it as were the nursing students. Both medical and nursing students felt patients valued medical care over fate in determining the outcome of an illness.

Certainly individual students respond to and use experience in different ways in their development. Search will need to continue in this fourth dimensional approach, community-side teaching, to refine its evaluations as a building stone toward the development of more effective practitioners.

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The Nursing Profession

Clinical Nursing Specialist in Nursing Service

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FOR 25 YEARS, the nursing profession has been challenged and preoccupied with the almost insurmountable problems created by a shortage and increasing need for adequately prepared personnel to render nursing care to patients. This problem has been the result of increasing demands by the public for hospitalization, and changes in the attitudes and practices of medicine, hospital administration, and nursing.

The increasing body of knowledge and technological advances in medicine and the continuously increasing expectations of a growing population has made tremendous demands on the physician. Since the profession as a whole, and the physician as an individual, is unable to satisfy all these demands, the physician is placing more responsibility on nursing to perform tasks previously performed by the physician. It is anticipated that physicians will continue to delegate to nursing an ever increasing amount of responsibility for a broader scope of activities.

The growing demands of the community and physicians for more hospital services has resulted in a rapid increase in the size of hospitals in the urban areas and a proliferation of small hospitals in the rural areas. These additional facilities have required tremendous increases in the number of the nurses needed to staff these hospitals. As hospitals increase in size and the pace of activity increases, more sophisticated systems of record keeping and communications are needed. Administration has placed the responsibility for this activity on nursing.

As these changes outside the nursing profession exert pressure for more nursing service, changing philosophies within the profession itself are bringing about significant changes in nursing services. The most evident change to date has been to move the preparation of professional nurses from a program which was service-oriented to a program which is educationally oriented. This change is becoming more imperative as the body of knowledge and technology increases, and as doctors delegate to nurses more complicated tasks to perform. The removal of student nurses from providing service *per se* has required hospitals to increase their nursing staff immeasurably to provide continuous nursing care.

To assist in meeting these demands, nursing ac-

cepted the untrained non-professional as an assistant who requires specific directions and very close supervision. It soon became evident that a more capable assistant to the professional nurse was needed, thus, a one-year vocational program in nursing developed. Graduates of these programs are assuming the responsibility for an increasing number of tasks previously performed by the registered nurse. As the sup-

Because of the increasing demands by the public for hospitalization, and changes in the attitudes and practices of medicine, hospital administration and nursing, the nursing profession has been faced with almost insurmountable problems created by a shortage for adequately prepared personnel to render nursing care.

To assist the personnel in the Department of Nursing Service at the University of Kansas Medical Center, three clinical nursing specialists have been employed as practitioner-teachers in nursing service. In this article each of the specialists has reported her interpretation of her role and experiences in her specialty area.

ply of personnel prepared at all levels increases, we must now direct our attentions away from quantity and concern ourselves primarily with providing for continual improvement in quality. It is an indisputable fact that as conditions improve the level of expectations is raised correspondingly.

It is now imperative that nursing personnel acquire an ever increasing amount of knowledge, intellectual ability, technical skill, and a deeper understanding of people. This is necessary if we are to assume a wider variety of responsibilities of increasing complexity, to understand the function and utilize equipment effectively, and to plan for and provide an individualized type of care to patients.

To assist the personnel in the Department of Nursing Service at the University of Kansas Medical Center to meet these new challenges, three clinical

nursing specialists were employed in July, 1965. Each specialist is regarded as a practitioner-teacher in nursing service. Since this concept is relatively new, a distinct role was not developed nor were functions clearly defined or delineated. Each has been granted freedom to develop her individual role as necessary to achieve the goal of improved nursing care. Each has been granted freedom to practice where and when needed without regard to unit or shift assignment. After seven months of experimentation, each one is functioning in a way different from each other. At this time there isn't any evidence that a single role is emerging. This may be due to the fact that each area of specialization is distinct in its mode of practice, patient load, and personnel expectations. I believe after so short a period of trial, it is possible to state that we have had a modicum of success. This statement is based on the fact that patients and their families have been highly complimentary of the services rendered, communications with patients and medical staff has improved, the medical staff working with each of the specialists has verbalized approval and appreciation, level of nursing care has improved through in-

creased depth of knowledge regarding each patient to whom care is rendered, and the personnel's thirst for knowledge has been revitalized as evidenced by statements of appreciation for the information being transmitted to them. I do not by any means wish to imply that the implementation of this concept has been easy. Each of the practitioners has had periods of frustration, as have other personnel as well as myself. I believe this to be a normal and natural reaction to a radical change. All personnel in Nursing Service are being required to adapt to a very permissive role for a few members of the staff after having been reared in a very traditional organization structure.

Each of the specialists has been asked to submit her interpretation of her role and experiences in her specialty area. "The Clinical Nursing Specialist in Psychiatry," has been written by Mrs. Diane O'Connor, R.N., M.S.; "The Clinical Nursing Specialist for Leukemia and Lymphoma," has been written by Mrs. Vada Rockwell, R.N., B.S., and "The Role of the Clinical Nursing Specialist in Cardiovascular Diseases," has been written by Miss Jean Yokes, R.N., M.S.

The Clinical Nursing Specialist in Psychiatry

DIANE O'CONNOR, R.N., M.S., *Kansas City, Kansas*

A NURSING CLINICAL specialist's role is unusually difficult to define in the speciality of psychiatric nursing. Her role is viewed from many different aspects by the various staff people she is called upon to assist, depending upon the particular nursing situation in which she is involved. Her nursing activities, rather than being confined to one area of the hospital or a limited group of patients, may involve her in the care of a depressed cancer patient on the surgery ward, a woman with postpartum psychosis, an elderly senile diabetic on the medicine ward, a suicidal patient on the psychiatric floor, and so on.

In order to illustrate some of the major functions of the psychiatric nurse specialist, which are basically the same in all situations, I would like to describe my role in the care of a specific patient. This example is not a completely accurate representation because ordinarily I would be working with more than one patient.

The patient was a ten-year-old boy admitted to the regular pediatric unit with a diagnosis of conversion reaction. His symptoms included paresis of all extremities, retention of urine and feces, and inability to talk above an almost unintelligible whisper.

He would not sit up unsupported and needed to be fed, bathed and dressed. He cried or whimpered whenever he was touched and wanted to be left alone to lie in bed. As is apparent from this very brief description, he presented a large number of nursing care problems. His plan of care needed to be consistent throughout each day and all members of the nursing staff needed to be well informed of the goals for his care.

My role as a psychiatric nurse specialist involved two separate, but closely related, functions: (1) direct patient care and (2) staff education. Direct patient care involved getting acquainted with the boy and assisting him to bathe, feed and dress himself; accompanying him to occupational and physical therapy, talking with him and observing his reactions in a variety of situations; giving him his medication and following the treatment program as established by a team consisting of the head nurse, several staff nurses, student nurses, occupational therapist, physical therapist, psychologist, medical students, and headed by the psychiatrists.

In the early days of his hospitalization his somatic symptoms and complaints were such that effective

nursing care imposed prohibitive burdens upon the time and attention of the regular pediatric nursing staff. The instructions from the psychiatrists were that the boy was to feed, clothe and bathe himself, and so on, things which he was, of course, physically capable of doing. However, his symptoms were such that it was easier for the staff to perform these activities for him rather than take the time and effort to force him to do these for himself. In fact, the requirements of caring for the other patients virtually prohibited this.

As a nurse specialist, with no responsibilities for other patients on the floor, it was quite feasible for me to spend several hours talking this child through a bath. While caring for the patient I had an opportunity to closely observe him in his dealings with me, with other patients, sometimes with members of his family, and in general to become fairly well acquainted with the manner in which he used his symptoms to satisfy his emotional needs. The nursing notes obtained from this relationship included not only his physical progress but also conversations, remarks, and responses which might give clues to his underlying emotional problems.

Equally important as direct patient care is the nursing specialist's responsibility for helping the regular nursing staff improve their knowledge and skills in the care of psychiatric patients. By example and by discussions in nursing conferences I tried to help the nursing staff better understand the nature of this boy's problem, and increase their proficiency in the observation and recording of significant behavior. This task was greatly facilitated by the fact that several of the regular nursing staff members had already established good therapeutic relationships with the patient.

The activities described above represent only a part of my total responsibilities. Others include working with a small number of adult psychiatric patients, participating in the total staff development program for psychiatric employees, and acting as a consultant to nurses on non-psychiatric units. I also hold an appointment as instructor in Nursing Education for the purpose of acting as a liaison between Nursing Education and Nursing Service.

The Clinical Nursing Specialist for Leukemia and Lymphoma

VADA ROCKWELL, R.N., B.S., Kansas City, Kansas

THE GROUP OF patients that I work with are all under the care of hematologists. Most of them have leukemia or some type of lymphoma, although other tumor patients are admitted to the service when they are receiving specific chemotherapy. This area was selected because of my particular interest and the special needs of these patients.

Experimenting with this position and trying to find out how the clinician can be most effective has become a rewarding and satisfying experience. I attribute most of this satisfaction to the increased amount of time that can be invested with patients, since the position of clinician or clinical specialist carries no responsibilities for unit administration. The greater freedom allows more time directly with patients and enables me to give and to assist others in giving direct care. The information that I have to contribute about the patient's needs is more accurate and up to date because I have been at the bedside.

Regardless of how she may choose to do this, the responsibility of the clinical specialist is to improve the quality of patient care. One factor that has contributed a good deal to this is the increased communication with the physician in charge of the pa-

tient's care. The information and explanations about the patient, his disease, and the plan of therapy received from the physician during daily rounds has proven invaluable in planning and giving care. A method is needed to communicate what I learn about patients to others who work with them. This would help to achieve continuity of care from shift to shift throughout the hospital stay. This is currently being done by using the kardex or by verbal explanation. We are now working on a form that may eventually prove helpful.

Another factor which promises improved services to patients is the changes that have occurred in the procedure to control hospital infection in certain patients whose resistance is abnormally low. After working with one patient for several days who was in protective isolation, it was possible to see flaws in existing techniques and to work out ways that afford greater protection. Although there is still much work to be done with this there have been improvements.

Because of the nature of their disease these patients have frequent visits to the hospital, both as inpatients and outpatients. I try to follow their progress by see-

ing them when they come into Clinic. The relationship that develops during these times is particularly advantageous to me and it seems to make hospitalization less traumatic for them. Other nurses have indicated that the patients seemed less reluctant to report things or to ask for things when I am present. At first patients respond with bewilderment to the increased care and attention. This is often followed by more gratitude than is perhaps deserved.

Almost as grateful and receptive as the patient are the relatives when they find someone who will take time to give simple explanations and who knows something about their family member who is ill.

Because I work almost exclusively with patients who have malignancies there are special problems involved. To be comfortable without specific knowledge in the face of blunt statements and loaded questions from both the patient and relatives is not easy. Being present when the physician discusses the patient's illness with him, knowing how much information the patient has about his condition and observing the techniques the physician uses to talk with the patient has done much to make this an easier situation for me.

There have been no personnel problems associated with the instigation of my role in this project. Physicians who tolerated the idea at first later became en-

thusiastic and more supportive than most nurses, and even requested additional patient care services. Nurses reacted to the fact that the position did not require that a specific eight hour shift be worked and that no administrative duties were connected to my job. After a few weeks this was either forgotten or accepted and they were more interested in what I had to offer about the care of our mutual patients.

Although this can be a very rewarding role it can be equally frustrating. It becomes frustrating when other factors prevent me from functioning at the clinical level. A frequent tendency is to become involved in certain aspects of managing the ward or helping patients who do not come under my jurisdiction. The reverse of this has occurred when I have become too involved with the care of one patient and function more as a private duty nurse while neglecting the care of other patients.

I feel the clinical specialist should be an educator by example and by incidental teaching, but taking on the obligations of in-service education is just one more factor that takes time away from the clinical area. The clinician or clinical specialist is not the final answer for nursing, but many of the problems we are now facing could be minimized if nurses were allowed to and would demonstrate their ability in the clinical area.

The Clinical Nursing Specialist in Cardiovascular Diseases

JEAN YOKES, R.N., M.S., *Kansas City, Kansas*

ON-THE-JOB EDUCATION for nurses is not a new concept of nursing and is one which has continued to be stressed as evidenced in the current literature. Also continually being emphasized is the professional nurse's own responsibility in keeping abreast of current publications and arming herself with more depth and breadth of knowledge in a world which is so highly specialized and research-minded. As one can surmise, the responsibility of further education belongs, on the one hand, to the institution which hires the nurse and, on the other hand, to the nurse who is hired. Both go hand in hand and further education is a joint concern.

Young nurse practitioners with newly acquired baccalaureate degrees are faced with high expectations from their employers and their patients. However, these young nurses are not usually equipped to meet these high expectations immediately. They may possess a good fund of general scientific knowledge and an understanding of basic principles

which apply to general nursing, but they often have had limited nursing experience with hospitalized patients. . . . Some nurses who have been with the some agency for many years find that they, too, feel inadequate in the light of the many new demands being made upon them.¹

I have made one of my goals as a clinical nurse specialist in cardiovascular disease to help provide guidance and stimulation of interest to hospital nursing personnel. I have used the knowledge of the pathophysiology, treatment, and nursing care of cardiovascular diseases as a basis and point of departure in trying to help provide better quality of nursing care.

To help meet the needs in providing better patient care at the University of Kansas Medical Center, I have used participation and guidance in direct patient care, ward conferences, and spontaneous discussions with individuals, none of which are new tools to nursing education. This involves communica-

tion with hospital personnel as well as a working-together-toward-a-goal attitude. Ward conferences have been held on such topics as EKG interpretation, postoperative care of the cardiac patient, use of cardiac monitoring, defibrillation and the pacemaker, and the pathophysiology and treatment of cardiac defects such as ventricular septal defect, mitral insufficiency and stenosis, and aortic insufficiency and stenosis. Films shown on the ward have been on such topics as congestive heart failure in infancy, disorders of the heartbeat and cardiopulmonary resuscitation. It is my belief that the topics previously mentioned, though they contain medical knowledge, are important for the nurse to know if she is going to have a scientific basis for the nursing care she gives. For example, if the nurse knows the pathophysiology of myocardial infarction, she is aware of signs and symptoms to observe for and report and she may be the one to initiate the prevention of further and some-

times fatal complications. The psychosocial aspects of preoperative preparation and postoperative cardiac care and the care of the patient with a medically treated cardiovascular disease such as myocardial infarction or hypertrophic myocarditis are included in the discussions with nursing personnel.

Much of the discussion of patients with cardiovascular diseases can be transferred to the nursing care of patients not admitted for evaluation and treatment of a cardiovascular pathology. But, because of the amount of specialized knowledge in cardiovascular disease, I have used this for the focus of guidance and stimulation in the attainment of depth and breadth of knowledge necessary for quality nursing care given by nursing personnel in a hospital setting.

Reference

1. Mereness, Dorothy: Your self-image and your practice, *The Am. J. of Nursing*, LXVI 97-98, Jan., 1966.

KANSAS BASIC SCIENCE BOARD EXAMINATION

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology, and physiology on June 3-4, 1966, at the University of Kansas Medical Center, Kansas City, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application forms and other information can be obtained from Dr. Elbert W. Crandall, Secretary, Kansas Board of Basic Science Examiners, Pittsburg, Kansas 66762.

Poison Control Center

Evaluation of 332 KUMC Poison Control Center Cases, August, 1962 to May, 1965

RICHARD E. EASTON, M.D., Kansas City, Kansas*

THE UNIVERSITY OF KANSAS Medical Center (KUMC) became an officially registered National Poison Control Center (PCC) in the fall of 1961. Records since that time indicate that the average incidence of recorded poisonings has been slightly more than 100 per year. Four procedures are carried out by the PCC in connection with each poisoning.

1. In the event that the case is a telephone inquiry the PCC provides information regarding toxic components of ingested materials; a voluminous card file and poison control library are maintained for reference;

2. The PCC recommends appropriate methods of therapy;

3. In the event that the case is seen in the KUMC-PCC (Emergency Room) actual treatment is instituted;

4. Finally, a USPHS form (No. 68) is filled out on all poisoning cases; one copy is kept at KUMC and one copy is sent to the National Clearinghouse for Poison Control Centers. The stated purpose of this procedure is "to compile epidemiologic data on the scope of the problem."

The purpose of this paper is twofold: first, to examine the experience accumulated in the KUMC-PCC, as extracted from the USPHS forms (No. 68) and second, to raise some questions about the usefulness of some of these procedures as teaching and research activities.

Data from 332 USPHS Poisoning Reports compiled in the KUMC-PCC between August, 1962, and May, 1965, were tabulated according to reporting categories (e.g., age, sex, etc.).

Age Distribution

The age distribution of the patients is presented in Table 1. Seventy per cent of the cases (233) occurred in the age categories less than five years old. Predictably, all of these cases were accidental and, therefore, probably preventable ingestion. There is a decrease in prevalence of cases between ages five and

fifteen. Above the age of five the great majority of cases (67 per cent) were attributable to suicidal gestures or actions of suicidal intent.

TABLE 1
AGE DISTRIBUTION OF 332 POISON
CONTROL CENTER PATIENTS

Age	Number		Accidental	Suicidal
4- 8 months	1		1	
9-12 months	11		11	
13-24 months	63		63	
2- 4 years	158		158	
5- 9 years	8	7		1
10-14 years	6	5		1
15-19 years	25	5		20
20-24 years	13	1		12
25-29 years	11	2		9
30-34 years	7	2		5
35-39 years	7	5		2
40-44 years	2			2
45-49 years	4			4
65-69 years	1			1
Unknown	13	(+13)		
Totals	332	275		57

Sex and Race

The distribution between males (154) and females (169) was approximately equal. In nine cases no note was made of the sex of the patients.

Racial distribution of the patients was 249 white versus 58 non-white. In 25 cases no information was given regarding race.

Products Ingested

Table 2 illustrates the categories of products ingested by toxic constituent. Included in the category "aspirin" are such compounds as Anacin®, Darvon® Compound, Bayer® children's aspirin and APC. "Barbiturates and Tranquilizers" includes, most commonly, phenobarbital (17 cases) and seconal (4 cases), and the Librium®-Valium® (17 cases) analogues, respectively. Phenothiazines (4 cases) were

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more frequently involved in accidental overdose (3 cases) than suicidal actions (1 case). The most common liquid hydrocarbon ingested was gasoline.

TABLE 2
PRODUCTS INGESTED BY 332 POISON
CONTROL CENTER PATIENTS

<i>Drugs</i>	<i>Number of Cases</i>
Aspirin	83
Barbiturates (21) and Tranquilizers (21)	42
Alcohol (in various products)	12
Other (Dicaumarol,	8
Antihistamines	6
Codeine	2
Demerol)	1
Misc. (patent meds. etc.)	61
<i>Chemicals</i>	
Hydrocarbons (gas, kerosene, etc.) ..	36
Bleach	36
Acid	4
Hexachlorophene	2
Misc.	3
<i>Insecticides</i>	
Organo Phosphates	4
Chlorinated hydrocarbons	3
<i>Unknown</i>	29
Total	332

Action Involved

In the 297 cases about which we have information 240 involved accidental ingestion (mistaken identity, accidental overdose). In 57 instances suicidal maneuvers, either gestures or intended attempts at self destruction, were involved.

Treatment

The most common forms of treatment instituted were lavage (189 times) and induced emesis (47 times). In 50 instances the patient was hospitalized. The reasons for hospitalization are listed in *Table 3*.

TABLE 3
REASONS FOR HOSPITALIZATION OF
50 POISON CONTROL CENTER PATIENTS

Observation (stupor, fever, hypotension, severe vomiting)	26
Self-destructive tendencies	19
Coma	5
Total	50

Source of Information for Therapy

Records of 74 phone inquiries are available. Only 12 of these came from medical personnel. The remainder were requests from the non-medical public.

In only nine recorded incidents did the House Officer consult the voluminous card file of toxic constituents for information on how to proceed with therapy. In 28 instances the PCC reference library was consulted. In 57 instances information used to guide treatment came from other sources (50) or previous knowledge (7).

Epidemiology of the Incident

In *no* incident was any of the following information concerning interactions among host, agent and environment recorded:

- A. Where was the substance found?
 1. In what room (kitchen, bathroom, living room, outside, other: specify)?
 2. Where in room (top of furniture, floor, open shelf, cabinet, closet, etc.)?
- B. Type of container
 1. Original container (with or without safety closure)?
 2. Not original container (bowl, saucer, cup, can, jar, pop bottle)?
- C. Was this the reasonable, usual or appropriate place for this container?
- D. Was there a warning on the original label?
- E. Who was caring for the child at time of accident? (attended by, vs. unattended)
- F. Is the patient a poison repeater?

Discussion

These data could be interpreted in the following way. Seventy per cent of the cases of accidental ingestion of poisonous substances seen at the KUMC-PCC in a 34 month period were preventable poisonings of children under the age of five. Annual reports of the National Clearinghouse indicate this incidence is increasing each year. The majority of these cases involve uncomplicated therapeutics (lavage, induced emesis), require little consultation with card files, reference texts or hospital staff, occasionally require hospital admission and then only for short observation of possible organic complications. (Suicidal admissions were not considered further.)

While the PCC Poison Report Form contains space for such information, there was not one instance in which epidemiologic data (other than age and sex) regarding the circumstances surrounding the accident was collected.

In view of the facts (1) that the annual incidence
(Continued on page 164)

Growth and Modernization

Clendening Medical Library: An emerging information training center library

IRVIN W. KRON, *Kansas City, Kansas**

IN 1860, WHEN John Shaw Billings was a medical student in Cincinnati he became aware of deficiencies in medical libraries in the United States. He related, years later, in a commencement address at his old school:**

. . . I not only ransacked all the libraries, public and private, to which I could get access in Cincinnati, but for those volumes not found here (and these were the greatest portion), search was made in Philadelphia, New York and elsewhere to ascertain if they were in any accessible libraries in this country.

After six months of this sort of work and correspondence I became convinced of three things. The first was, that it involves a vast amount of time and labour to search through a thousand volumes of medical books and journals for items on a particular subject, and that the indexes of such books and journals cannot always be relied on as a guide to their contents. The second was, that there are, in existence somewhere, over 100,000 volumes of such medical books and journals, not counting pamphlets and reprints. And the third was, that while there was nowhere, in the world, a library which contained all medical literature. . . .¹

Billings was assigned, after serving as surgeon with the Medical Corps of the Army of the Potomac, to the Library of the Surgeon General's Office. He was given the opportunity to develop a neglected collection of about 1,800 volumes into one of the largest subject collections in the world. The library is now called the National Library of Medicine (NLM).

The early frustrations with the libraries in Cincinnati led Billings to establish an index of the holdings of the library. The index included books, original papers, articles in periodicals, together with the back files as well as current issues. The final publication was entitled the *Index-Catalogue of the Library of the Surgeon-General's Office, United States Army*. The first series consisted of 16 volumes and was completed in 1895.

The present day *Index Medicus* is the outgrowth of the *Index-Catalogue*. The changes in the *Index*

Medicus, as now published, were made by the former librarian of the National Library of Medicine, Dr. Frank B. Rogers* (a modern day Billings). The publication is now completely mechanized by a computer-based program called MEDLARS (Medical Literature Analysis and Retrieval System). The MEDLARS system is based on the literature which is found in the *Index Medicus* and is converted into computer language for "on-demand" retrieval by subject, author

Like other departments of KUMC, the Clendening Medical Library has expanded its services, and is to be modernized in keeping with developments in other major medical libraries.

or title literature searches. MEDLARS was operational as of January, 1964. However, even before the central system went into production, plans were being made to multiply the bibliographic search and retrieval capabilities by a carefully planned program of decentralization.

In 1965, two decentralized MEDLARS pilot centers were established in the United States. One is at the University of California Medical Center Library (serving the libraries in the Pacific time zone) which has computer equipment not compatible with that installed at the NLM and the second at the University of Colorado Medical Center (serving the Mountain time zone libraries) which has access to compatible equipment. It has been proposed that other regional areas will be selected in 1966 or 1967 for similar pilot projects to serve adjacent areas. Each of the decentralized MEDLARS libraries will produce "on-demand" bibliographies for the medical profession in a defined region.

The Clendening Medical Library will eventually use a regional decentralized MEDLARS library or will subscribe to the computer tapes, when they become available, if compatible equipment is available

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** The Medical College of Ohio which was founded by Dr. Daniel Drake. The College is now the University of Cincinnati College of Medicine.

* Dr. Rogers is now the Librarian at the University of Colorado Medical Center.

in the area. Ultimately, this storehouse of the literature will be available to any member of the medical or paramedical professions by "on-line" interconnected medical library facilities.

In 1963, the Clendenen Medical Library became the only large medical library in Kansas that was state supported. It assumed the function of an area library for service to the many hospital and clinic libraries in Kansas. Last year over 3,000 loans and 11,625 pages of photocopy were made available to researchers and hospital libraries in the area.

Growth figures are inevitable to show some of the changes in library service during the past ten years. Circulation of all materials in 1955 totaled 37,000 different items. Last year, the total circulation climbed to 143,339 items. The collection in 1955 was just under 26,000 volumes. It is now over 90,000 volumes.

The Library also participates in exchange programs for library materials in the United States, Great Britain, Czechoslovakia and Mexico. The Library gives work area and supplies duplicate materials for the People-to-People program for "Journals Overseas." This organization shipped over five tons of material, or approximately 22,000 issues, to libraries throughout the world.

In 1966, an Instructional Materials Center (IMC) will be established in the Clendenen Medical Library. The IMC will be supported by the Department of Medical Communications and the Library. The facility will contain a wide range of medical communication instructional materials for the use of students in various medical center training programs. The IMC will have space for learning activity, learning materials, devices necessary for using the learning materials, and catalogs of instructional materials available both from our own collection and from outside sources. Initially, the available "in house" collections will be used. This will be comprised of films, slides, audiotapes and programmed texts. Other self instructional materials will be added as they become available.

Seminars on library methods have been conducted by the staff of the Library for two years. It is hoped that these programs will assist and upgrade standards for medical library personnel throughout the state. These programs will be extended to include postgraduate training for the professional librarian in the area.

Computers will play an important role in streamlining many dated library procedures. Plans have been initiated to gradually replace the old methods with the new. The first project will be the control of periodical holdings and the development of book

card catalogs (which will replace, in part, the traditional 3 x 5 card catalog).

In conclusion, many changes will occur in the medical libraries in the next decade. The new generation student will have facilities heretofore untried. The challenge is filled with opportunity and can only lead to greater levels of accomplishment. It can be done if we keep an eye to the future and begin. Billings once said:

. . . there's nothing really difficult if you only begin—some people contemplate a task until it looms so big, it seems impossible, but I just begin and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done.²

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Poison Control Center

(Continued from page 162)

of poisonings is remaining constant in our experience, (2) that therapy and disposition apparently present no insoluble problems, and (3) that the data accumulated in this study provide few, if any, clues to the actual circumstances surrounding the case or the true nature of the problem, the following questions should be raised: How, in fact, do the toxic agent, the infant host and his environment interact? What corrective measures (school health education, community-wide poison control programs, etc.) would be the most appropriate and effective to attack the problem at its source?

Is it consistent with the educational goals of the institution to require the House Officer to repeatedly record data about routine therapy and management?

A companion study is now in progress in which approximately 40 cases will be reported. In each case the patient or parent was interviewed by a Public Health Nurse, the poisoning environment was surveyed, poison control epidemiologic data collected, and the apparent cause and remedy were discussed with the parents. The effectiveness of these follow-up educational activities will be reported.

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The President's Message

DEAR DOCTOR:

These sunny, crisp days make one realize that spring is not far away and with it will come the annual Scientific Meeting of the Kansas Medical Society. The meeting this year in Wichita promises to be one of the best ever. It is well-planned, with several innovations. The meeting will be in the beautiful new Lassen Plaza and enough room will be available so that everyone may stay under one roof. The ladies will have access to the Wichita Club and the several nice dining rooms of the Plaza for their events as well as poolside activity in the Plaza.

Added to the scientific program are morning seminars at the three Wichita hospitals which will be tops in postgraduate education. Buses will transport all attendants to the hospital (or program) of choice. Because of expected large attendance pre-registration for these courses is encouraged.

Don't miss your state meeting this year.
PLAN NOW!



Sincerely,

George Burkett, Jr., M.D.

President



An Approach to Emergency Health Preparedness

Thomas Caryle once said, "our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand." It is evident that the preparation of the civilian population against the possibility of man-made disaster does lie clearly at hand.

Life-taking, property-destroying disasters occur somewhere every day. Following the more extensive of these, it often becomes apparent that disaster problems could have been dealt with much more successfully if certain preparations had been made in advance. Consequently, communities that have been visited with disaster often do, when the event is past, make preparations against the day that disaster strikes again.

The medical and allied medical professions have a specific role to play if emergency preparedness is to take place. Component societies, acting on the recommendations of the Committee on Emergency Medical Care, have demonstrated their recognition of this need by appointing Emergency Health Service (EHS) Coordinators. The EHS Coordinator can, in most communities, provide the necessary leadership to coordinate local health resources into a workable disaster plan.

The following material was abstracted from the manual, *Community Emergency Health Preparedness*, which was developed by Public Health Service, Division of Health Mobilization. This manual provides guidance for the EHS Coordinator. It is recommended that the EHS Coordinator follow this approach in the establishment of an effective preparedness program.

First Phase of Preparedness: Planning and Organizing

Community emergency health preparations can be thought of as occurring in two distinct phases.

The first of these involves primarily planning and organizing.

One Emergency Health Service Plan should be developed in each community. This plan should include provisions for man-made, as well as natural disasters. Civil Defense preparations are necessary at federal, state, and community levels, but it is the community that must deal directly with the disaster. "Community," as used here, refers to the smallest political subdivision, or combination of subdivisions, within a state which plans and organizes separately for civil defense. It should be of sufficient area and should contain enough population and other resources to justify separate organizing. Most often it will be a county, a city, or a combination city-county. It may even be a multi-county unit, when the counties are small and sparsely populated.

The "key" to successful operations in a disaster situation is a plan which includes effective utilization of all community resources. These may be defined as manpower, facilities, and materials available in the community.

Second Phase of Preparedness: Implementing Programs

Preparing the written emergency health plan and defining the emergency health organization constitute the first phase of preparedness. These actions, however, represent only a limited increase in the community's disaster capability unless they are followed by certain long-term endeavors, or implementing programs, which make possible the truly effective carrying out of emergency health operations. Like planning and organizing, these programs can best be accomplished under the initiative and guidance of the emergency health advisory committee. The cooperation and assistance of a majority of the community's health and medical people, as well as many

other of the community's citizens, is essential. Implementing programs include the following:

A. MEETING MANPOWER NEEDS

1. Recruit, register, and assign to emergency health facilities and other emergency health activities the health and supporting manpower which is available in the community.
2. Train all emergency health service assignees to perform their emergency functions most effectively.
3. Establish, in cooperation with emergency manpower resource officials, procedures to acquire additional manpower for emergency health activities in time of disaster.
4. Help train the general public through Medical Self-Help and similar courses so that individuals and families can better meet their own health needs in disaster. This will lessen the potential demand for organized health services.

B. MEETING FACILITY NEEDS

1. Develop hospital disaster plans which are consistent with the community emergency health plan and which provides for maximum expansion of bed space and essential hospital services.
2. Arrange to use certain existing non-health buildings as the operating sites for Packaged Disaster Hospitals, first-aid stations, and emergency outpatient units.
3. Arrange to use facilities like motels and hotels for provision of minimal bed care.

C. MEETING MATERIAL NEEDS

1. Estimate, in terms of the emergency health plan, disaster requirements for essential health materials, assuming the most economical use possible and the employment of substitute items when feasible.
2. Inventory all significant supplies in community to determine average holdings.

D. MEETING SUPPORTING RESOURCES NEEDS

1. Estimate the total support requirements for all planned emergency health activities.
2. Establish with officials, procedures for providing the needed support in disaster.

E. TESTING

Testing involves the simulation of disaster conditions in order to bring into operation part or all of an emergency plan. Testing is the best means, short of an actual disaster, for determining the current state of preparedness.

The above preparedness actions show, in a limited way, some of the actions needed for an effective disaster plan. More detailed guidelines may be obtained from—Health Mobilization, Kansas State Department of Health, Topeka, Kansas.

E. B. STRUXNESS, M.D., *Chairman*
Committee on Emergency Medical Care

NOMINATING COMMITTEE

The Nominating Committee met in Topeka on Sunday, January 16, 1966, and submits the following names as candidates for the elective offices of the Kansas Medical Society:

President-Elect

George F. Gsell, M.D., Wichita. Born in 1907. Graduated from Rush Medical College in 1933. Has served as Councilor and AMA Delegate.

First Vice President

John L. Morgan, M.D., Emporia. Born in 1915. Graduated from University of Pennsylvania School of Medicine in 1940. Has served as Councilor and chairman of committees.

Second Vice President

Robert C. Polson, M.D., Great Bend. Born in 1917. Graduated from University of Kansas School of Medicine in 1942. Has served on numerous committees.

Leland Speer, M.D., Kansas City. Born in 1912. Graduated from the University of Kansas School of Medicine in 1936. Has served as Secretary.

Evan R. Williams, M.D., Dodge City. Born in 1925. Graduated from Northwestern University School of Medicine in 1952. Has served as Councilor.

Secretary

Virgil E. Brown, M.D., Sabetha. Born in 1906. Graduated from the University of Kansas School of Medicine in 1937. Has served as Councilor.

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. Has served as Councilor.

Treasurer

John L. Lattimore, M.D., Topeka. Born in 1894. Graduated from Fort Worth School of Medicine in 1918. Is currently serving as Treasurer.

AMA Delegate

Lucien R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Has been president of the Kansas Medical Society. Is currently serving as AMA Delegate.

Alternate AMA Delegate

J. Warren Manley, M.D., Kansas City. Born in 1907. Graduated from the University of Kansas School of Medicine in 1940. Has served as Councilor. Is currently Alternate AMA Delegate.

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

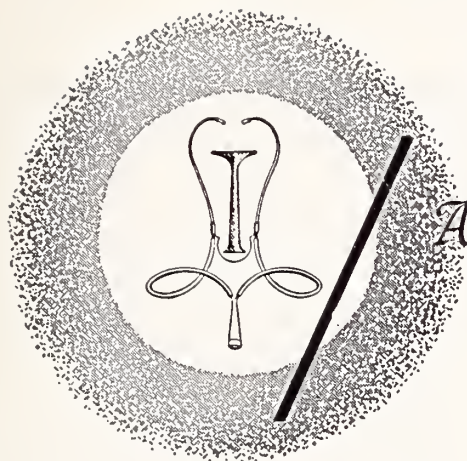
By now you should have received your annual statement for KaMPAC dues for 1966. I hope you have sent the check to our office in Topeka and if you feel as strongly as many of us, you will have sent one for your wife, too.

This year is an election year; all of the members of the United States House of Representatives and one third of the United States Senators are up for election. I'm sure you are aware that in non-presidential election years, the administrative party tends to lose members. Some 58 congressmen rode into office on President Johnson's coat-tails and, of course, these are vulnerable. If these particular men had not been in Congress, the Medicare Bill would not have been passed. Many of us are confident that we can help men friendly to us to be elected and can prevent further expansion of federal medicine. We will need your help, both in money and work. Send in your dues if you have not already done so, and this money will do good work for you. Remember every penny you contribute goes to a candidate with your political philosophy. Join KaMPAC in the election year!!

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations

APRIL

The "Work Simplification for Daily Living" program presented by the Kansas State Department of Health in cooperation with the Kansas Heart Association, the Kansas Medical Society and other community and health organizations, will be held during the month of April at the following locations.

- Apr. 12 Pittsburg—Municipal Auditorium
- Apr. 13 Hutchinson—Convention Hall Auditorium
- Apr. 14 Garden City—Garden City Co-Op Center
- Apr. 15 Great Bend—Elks Club
- Apr. 16 Manhattan—Holiday Inn of America

Originally planned as a service to people who have, or have had, some form of heart trouble, the program will be equally valuable to many others. Physicians should recommend the program to their patients—and plan to attend themselves. Registration forms and additional information may be obtained by writing Mr. E. S. Avison, Extension Building, University of Kansas, Lawrence. Phone: 916 UN 4-3151.

- Apr. 1-2 18th annual Midwest Cancer Conference, Broadview Hotel, Wichita. Approximately 10 hours of Category II credit is available for general practitioners who attend. For further information contact the Kansas Division of the American Cancer Society, 824 Tyler, Topeka.
- Apr. 4-6 Biomedical Communication: Problems and Resources, Waldorf-Astoria Hotel, New York City. For further information, contact James Lieberman, Director, Public Health Service Audiovisual Facility, Communicable Disease Center, Atlanta, Georgia 30333.
- Apr. 4-8 39th annual Spring Congress in Ophthalmology and Otolaryngology, Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Virginia. For information write: Superintendent, P. O. Box 1789, Roanoke, Virginia.

- Apr. 25-27 Annual spring session of the American Academy of Pediatrics, Queen Elizabeth Hotel, Montreal, Canada. Write the American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204, for preliminary program, housing and registration forms.
- Apr. 25-28 American Industrial Health Conference, Sheraton Cadillac Hotel, Detroit, sponsored by the Industrial Medical Association and the American Association of Industrial Nurses. For further information write the American Industrial Health Conference, 55 East Washington Street, Chicago 60602.
- Apr. 28-30 3rd annual Midwest Conference on Anesthesiology, Continental Plaza Hotel, Chicago. For information contact T. L. Ashcraft, M.D., General Chairman, 33 East Cedar St., Chicago 60611.

MAY

- May 2-5 Kansas Medical Society, Annual Session, Lassen Hotel, Wichita.
- May 5-7 Annual meeting of the Mid-Central States Orthopaedic Society, Cornhusker Hotel, Lincoln, Nebraska.

POSTGRADUATE COURSES

University of Kansas:

- Apr. 4-6 *Ophthalmology*
- Apr. 20-22 *Anesthesiology*
- May 6 *Infectious Diseases*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, 39th & Rainbow Blvd., Kansas City, Kansas 66103.

University of Colorado:

- Apr. 4-6 *Gastrointestinal Pathology*
- Apr. 7-9 *Clinical Gastroenterology*

For further information write the Office of Postgraduate Medical Education, University of Colorado

(Continued on page 172)

Psychiatric Care or Treatment Act

Summary of Act for Obtaining Care and Treatment for Mentally Ill Persons

(The following summary of the Psychiatric Care or Treatment Act, Chapter 348, 1965 Laws of Kansas (H.B. 902), was prepared by the State Department of Social Welfare, Division of Institutional Management.)

I. DEFINITIONS

The following are included among the 17 definitions in the act:

- a. "Mentally ill person" shall mean any person who is mentally impaired, except by reason of mental deficiency only, to the extent that he is in need of "care or treatment" and who is or probably will become dangerous to himself or the person or property of others if not given "care and treatment" and
 - (1) who lacks sufficient understanding or capacity to make responsible decisions with respect to his need for "care or treatment," or
 - (2) who refuses to seek "care or treatment":
Provided, that no person who is being treated by prayer in the practice of the religion of any church which teaches reliance on spiritual means alone through prayer for healing shall be determined to be a "mentally ill person" unless substantial evidence is produced upon which the probate court finds that the "proposed patient" is or who probably will become dangerous to himself or the person or property of others, or unless his guardian, if any, consents to such determination.
- b. "Informal patient" shall mean a person either receiving outpatient "care or treatment," which includes day or night hospitalization, at a psychiatric hospital or who is admitted to a psychiatric hospital on informal admission status.
- c. "Voluntary patient" shall mean a person, other than an "informal patient," who is receiving "care or treatment" at a "psychiatric hospital" other than by order of any court.
- d. "Involuntary patient" shall mean a "mentally ill person" who is receiving "care or treatment" under order of a probate court.
- e. "Psychiatric hospital" shall mean a state hospital, a veteran's hospital, a private or public hospital established, licensed, certified or accredited under state law as suitable for the detention, "care or treatment" of a "patient."
- f. "General hospital" means a hospital licensed by the State of Kansas and operated primarily to provide a place for the diagnosis and treatment of the physically ill.
- g. "Other facilities for 'care or treatment'" shall mean any mental health clinic, general hospital, nursing home, "physician" or any other institution or individual authorized or licensed by law to give "care or treatment" to any "patient."
- h. "Discharge" shall mean the final and complete release from "care or treatment," by either a "psychiatric hospital," or an order of a probate court in connection with an "involuntary patient."
- i. "Convalescent" shall describe the status of any "patient" who has not been "discharged," but who is permitted by the "head of the hospital" to live apart from a "psychiatric hospital."
- j. "Peace officer" shall mean any sheriff, regularly employed deputy sheriff, state highway patrolman or regularly employed city police officer.

II. ADMISSIONS

- a. *Informal*: Any person 16 years or older may be admitted to a psychiatric hospital as an informal patient if accepted by the head of the hospital. Patient is free to leave hospital between 9 a.m. and 5 p.m. and at such other times as the head of the hospital may determine.
- b. *Voluntary*: Any person 16 or older (or guardian if person has one, or if under 16 the parent or person *in loco parentis*) may make written application and be admitted if accepted by the psychiatric hospital. Hospital may require a physician's statement.
- c. *Emergency*: Any general or psychiatric hospital may admit and detain any person for

emergency observation, care or treatment under:

- (1) probate court order of protective custody;
- (2) written application of a peace officer, pending availability of court order of protective custody and based upon reasonable belief upon observation that the person is a "mentally ill person" and because of his illness is likely to do physical injury to himself or others if allowed to remain at liberty. Hospital determines acceptance. The person shall be entitled to immediately contact his legal counsel or next of kin; or
- (3) written application of a reputable individual, with criteria as for peace officer, plus written statement by physician.

d. *An Order for Mental Evaluation*: The court may order a "proposed patient" (for whom an application has been filed to determine whether he is a "mentally ill person") to submit himself for mental evaluation at a general or psychiatric hospital, mental health clinic, private psychiatrist or physician. Written evaluation shall be submitted to court, at time designated, and prior to hearing.

e. *Order of Referral*: At any time prior to a hearing, the "proposed patient" may make written request that the hearing be continued for 90 days for the court to refer him for not more than 90 days for short term "care or treatment" to:

- | | |
|--|---|
| (1) State psychiatric hospital | |
| (2) U. S. Government facility | |
| for care or treatment of a | } conditional
upon the
consent of
the facility |
| mentally ill person | |
| (3) Private psychiatric hospital | |
| (4) Other facilities for care or treatment | |

A "proposed patient" so referred may be accepted for voluntary admission in a psychiatric hospital, and may be discharged by the hospital whether under referral or voluntary status. Otherwise, a written report of findings and recommendations shall be submitted to the court at least ten days prior to expiration of referral period.

f. *Admission of Mentally Ill Person (Involuntary)* (Court order for care or treatment): An application to determine whether the proposed patient is a "mentally ill person" may be filed in probate court of the county of patient's residence or presence by any reputable person. The court may then:

- (1) issue an order of protective custody, which is valid until the conclusion of the hearing;
- (2) fix time and place of hearing on the application;
- (3) appoint attorney if patient has none;
- (4) issue an order for mental evaluation;
- (5) issue an order for investigation and report back to the court prior to the hearing.

Notice of the application shall be given by the court to the proposed patient, his attorney, and other persons as directed by the court, and includes information as to the proposed patient's right to demand a hearing before a jury, time and place of hearing and whether proposed patient shall be present; and attorney's name with time and place for proposed patient's consultation with attorney. The court may order any of the following to personally serve the notice:

- physician serving proposed patient (with his consent);
- head of local mental health clinic or his designee;
- county medical health officer or his designee;
- county director of social welfare or designee;
- any peace officer.

The hearing may be held to the court only, or before a commission, or before a jury.

If, after the hearing, the court finds the proposed patient is a mentally ill person, the court shall order care or treatment at any of the facilities listed in Section II, e, Referral. If not found mentally ill, the proceedings are terminated.

III. RELEASE AND DISCHARGE

The head of the hospital may discharge any *informal* or *voluntary* patient whose hospitalization he determines to be no longer advisable or if in his judgment the discharge would contribute to the most effective use of the psychiatric hospital.

A *voluntary* patient must be discharged five days after a written request is submitted. If continued hospitalization is indicated, the hospital may file an application in this period for court to determine whether the voluntary patient is a mentally ill person. Other procedures are outlined in the statute in cases where the discharge is requested by a person other than the patient. Other discharge procedures include:

- a. Hospital discharge of the patient under

"emergency" admission when the order of protective custody expires or not later than the first full day the court is "available" to provide other orders.

- b. Discharge by court order after hearing on application by any involuntary patient or a person in his behalf.
- c. The hospital may discharge any *proposed patient* or *involuntary patient* ordered to a psychiatric hospital on *referral* or for *care or treatment*, when he is no longer in need of care or treatment. Any patient may be released on *convalescent status* when the head of the hospital believes that such release is in the best interest of the patient. Hospital responsibility continues, including change in plan or place of "care or treatment," and authority to order return to the hospital.

Any patient leaving the place of his care or treatment, *unauthorized*, may be ordered returned by the head of the hospital.

IV. NOTICES, REPRESENTATION BY ATTORNEY, CHANGE OF VENUE:

The patient or proposed patient's rights are protected throughout the statutes by provision for notices of the various actions to the proposed patient, his relative, guardian, or other persons, and by provision for representation by an attorney.

The probate court may transfer venue of "involuntary" applications or applications for discharge to other probate courts under specific conditions.

V. RIGHTS OF PATIENTS

Every patient detained in a psychiatric hospital

or "other facility for care or treatment" may write the state department of social welfare, the "head of the hospital," any court, physician, or attorney. Hospital may impose reasonable rules and regulations concerning patient communicating by letter or otherwise with any other person or agencies and concerning his right to receive visitors; Provided, that any patient may be visited by a physician or attorney at any reasonable hour.

Except as limited by this act a patient does not lose his rights as a citizen, his property rights or his legal capacity; provided, that the head of the hospital may make reasonable rules and regulations concerning the exercise of such rights by the patient in the psychiatric hospital.

VI. TRANSPORTATION

All court orders for protective custody, referral, or care or treatment shall authorize a relative or other suitable person to transport the individual named in the order, to the facility specified. The order shall be served upon person in charge of facility or his designee, by person transporting the individual; order shall be returned to court. A female is to be accompanied by a female attendant or adult relative. Transportation is *not* to be in a marked police or sheriff's car if other transportation is available.

VII. OTHER

The above is a brief summary of the act; refer to the statutes for details and other areas concerning court costs and fees, disclosure of records, liability in false application, report or order, etc.

Announcements

(Continued from page 169)

School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Missouri:

Apr. 14-15 *12th Seminar in Urology* (Kansas City, Mo.)

Apr. 20-21 *Family Practice*

For further information write the Office of Continuing Medical Education, University of Missouri, School of Medicine, Columbia, Missouri.

Apr. 4-7 *Treatment of Injuries*, Committee on Injuries of the American Academy of Orthopaedic Surgeons, Olympic Hotel, Seattle, Washington.

SCHOOL HEALTH ADVISORY COUNCIL

The Kansas School Health Advisory Council will hold its annual meeting on April 14, 1966, at the Union Building, Kansas State Teachers College, Emporia.

The theme this year is "Food Fads, Drugs, Quackery and Fluoridation." There is no registration fee and the meeting is open to the public. The Council would appreciate the cooperation of the Society members in advertising the meeting. Mention the program to individuals you think will be interested and urge them to attend.



Personalities—IN KANSAS MEDICINE

H. V. Bair, superintendent and medical director at Parsons State Hospital and Training Center, has been appointed to the board of directors and nominating committee of the Joint Commission on Mental Health of Children. The Commission, co-sponsored by 13 national organizations, including the AMA and the American Psychiatric Association, was incorporated at a meeting in Washington in August, 1965. Dr. Bair has attended two subsequent board meetings in Washington.

Among the physicians attending the annual General Practice Review at the University of Colorado Medical Center in January were: **W. M. Steen**, Smith Center; **Fagan N. White** and **Walter J. Pettijohn**, Russell; **J. W. Jacks**, Pratt; **Roy B. Coffey**, Salina; **Glen C. Hutchison**, Hays, and **Willard Werner**, Tribune.

Joseph M. Stein, Topeka, was one of the featured speakers at the annual meeting of the Kansas State Chapter of the National Multiple Sclerosis Society, held in February. A neurologist at the Menninger Foundation, Dr. Stein was recently appointed by the Shawnee County Commission to the City-County Health Advisory Board.

The Samuel Crumbine award, given annually for outstanding contributions in the field of public health by the Kansas Public Health Association, has been presented to **Geoffroy Martin** of Topeka. Dr. Martin, former executive secretary of the State Board of Health, was instrumental in establishing the national clearinghouse of poison information. He also helped to revise methods of studying and decreasing neonatal deaths.

Leland R. Kaufman, Winfield, was recently

elected to active membership in the American Academy of General Practice.

The Norton County Mental Health Association selected **Merlynn Colip**, Norton, president for 1966. Elected to three-year terms on the board of directors were **E. F. Steichen**, Lenora; **Robert C. Long**, Norton, and Dr. Colip.

A. S. Reece, Gardner, was re-elected president of the board of directors of the Gardner Community Medical Center at the annual meeting held in January.

Antoni M. Diehl, Kansas City, president of the Kaw Valley Heart Association, recently announced the appointment of **Jesse D. Rising**, Kansas City, to the association's board of directors. Dr. Rising is chairman of the department of postgraduate medical education at KUMC.

Reuben J. Burkman, Chanute, has been named chief of staff of Neosho Memorial Hospital, Chanute.

The medical staff of the St. John Hospital, Leavenworth, has re-elected **Gordon S. Voorhees** as president. Also re-elected were **Charles A. Bennett**, vice president, and **Andres Grisolia**, secretary. **W. L. Pratt** was elected to serve on the Joint Conference Committee.

New president-elect of the Sedgwick County Hospital medical staff is **Robert M. Daniels** of Valley Center.

Staff officers for 1966 for the Shawnee Mission Hospital are **Ben M. Kozikowski**, Shawnee Mission, president; **M. D. Athon**, Overland Park, president-elect; and **Samuel Petrie**, Mission, secretary-treasurer.



Book REVIEWS

PHYSICAL EXAMINATION OF THE JOINTS, by Wm. Beetham, M.D., Howard Polley, M.D., Charles Slocum, M.D., Walt F. Weaver, M.D. W. B. Saunders Co., Philadelphia, 1965. 198 pages illustrated. \$7.50.

Many texts of anatomy have been written, often by anatomists or surgeons, but rarely has such a book been so expertly written by four rheumatologists. This monograph is concerned exclusively with a physical examination of the joints and its relationship to the rheumatic arthropathies.

The book is prefaced with a brief review of the anatomy and a description of the types of joints. The remaining chapters give a physical examination of each joint in sequence enumerating such pathological features as deformity, synovial thickening, synovial cysts, joint effusion, tophi, and nodules. As further aid to the physical examination, methods of evaluating joint motion and impairment are also included within each chapter.

A liberal addition of illustrations and diagrams makes this monograph an excellent reference for the practitioner that he may better evaluate patients with rheumatic diseases. Although the scope of this book does not include therapy, it is well recommended as a very readable and practical book which will not become outdated.—H.G.K.

CELLULAR BIOLOGY OF MYXOVIRUS INFECTIONS, edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., F.R.C.P., and Julie Knight, B.A. Little, Brown and Company, Boston, 1964. 368 pages illustrated. \$12.00.

The book comprises a series of 13 authoritative papers, based largely on studies of influenza and Newcastle Disease viruses. The first seven chapters relate to virus morphology, sub-structural composi-

tion, and factors affecting nucleic acid metabolism, and hence intracellular viral assembly. These papers are followed by a general discussion on structure and classification of myxoviruses. The last six chapters describe efforts to obtain genetic recombinants between subtypes of influenza A viruses, bases of differences between some variant strains, antigenic subunits and antibody formation, persistent intracellular infection, and a résumé of defense factors operative *in vivo*.

This compendium is addressed to the virologist; the presentations are basic, and assume that the reader has some background information. This is as intended, since the papers were presented to colleagues by specialists in the field. This reviewer found the often provocative discussions at the end of each paper to be as enlightening, if not more so, than the text on which discussion was principally based.—H.A.W.

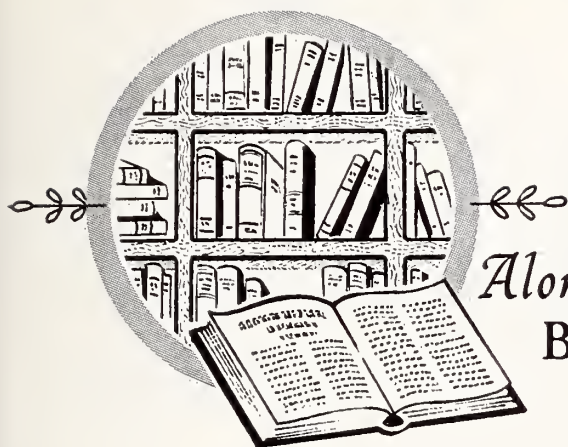
THE HISTORY OF SURGICAL ANESTHESIA by Thomas E. Keys. Dover Publications, New York, New York. 193 pages illustrated. \$2.00.

This book is a "must" for the anesthesiologist. It gives briefly, but adequately, the historical information he needs in his practice. It is both well written and well illustrated and has been regarded as a classic.

Its purpose is to give a condensed history of the development of anesthesia from the very earliest times to the present.

However, through its reference tables, it may also arouse further interest in the history of anesthesiology for its own sake in some of its readers.

Special mention should be made of the essays by Doctor Leake and Doctor Gillespie. These serve to augment and give life to the development of anesthesiology.—R.T.P.



Along The BOOKSHELF

Clendening Medical Library

Recent Acquisitions

- Braun, Werner. Bacterial genetics. 2d ed. Saunders, 1965.
- Burket, L. W. Oral medicine; diagnosis and treatment. 5th ed. Lippincott, 1965.
- Cahoon, J. B., Jr. Formulating X-ray techniques. 6th ed. Duke Univ., 1965.
- Conference on Global Impacts of Applied Microbiology, Stockholm, 1963. Proceedings. Wiley, 1965.
- Duane, T. D. Ophthalmic research: U.S.A. New York, 1965.
- Eissler, K. R. Medical orthodoxy and the future of psychoanalysis. International Univ., 1965.
- Furth, H. G. Thinking without language; psychological implications of deafness. Free Press, 1966.
- Hordern, Anthony. Depressive states: a pharmacotherapeutic study. Thomas, 1965.
- Ingram, G. I. C. and Richardson, Sir John. Anti-coagulant prophylaxis and treatment. . . . Thomas, 1965.
- International Bronchitis Symposium. 2d, Groningen, 1964. Bronchitis. Thomas, 1964.
- International Union Against Cancer. Committee on Tumor Nomenclature. Illustrated tumor nomenclature. Springer, 1965.
- Karlin, I. W., Karlin, D. B., and Gurren, Louise. Development and disorders of speech in childhood. Thomas, 1965.
- Karpovich, P. V. Physiology of muscular activity. 6th ed. Saunders, 1965.
- Kraus, Hans. Backache, stress and tension. . . . Simon & Schuster, 1965.
- Lillie, R. D. Histopathologic technic and practical histochemistry. 3d ed. McGraw-Hill, 1965.
- Lillington, G. A. and Jamplis, R. W. A diagnostic approach to chest diseases; differential diagnosis based on roentgenographic patterns. Williams & Wilkins, 1965.
- Maeda, Kenji. Streptomyces products inhibiting mycobacteria. Wiley, 1965.
- Marks, John and Pare, C. M. B., eds. The scientific basis of drug therapy in psychiatry; a symposium. Pergamon, 1965.
- New York. Mount Sinai Hospital. Medical, surgical, and gynecologic complications of pregnancy. 2d ed. Williams & Wilkins, 1965.
- O'Malley, C. D. English medical humanists, Thomas Linacre and John Caius. Univ. Kansas, 1965.
- Pease, P. E. L-forms, episomes, and auto-immune disease. Livingstone, 1965.
- Reed, E. W. and Reed, S. C. Mental retardation, a family study. Saunders, 1965.
- Robinson, H. B. and Robinson, N. M. The mentally retarded child: a psychological approach. McGraw-Hill, 1965.
- Schwarz, G. S. and Golthamer, C. R. Radiographic atlas of the human skull; normal variants and pseudo-lesions. Hafner, 1965.
- Selman, Joseph. The fundamentals of X-ray and radium physics. 4th ed. Thomas, 1965.
- Selye, Hans. The mast cells. Butterworths, 1965.
- Seward, Charles. Bedside diagnosis. 7th ed. Williams & Wilkins, 1965.
- Skipper, J. K. and Leonard, R. C., eds. Social interaction and patient care. Lippincott, 1965.
- Stacy, R. W. and Waxman, B. D., eds. Computers in biomedical research. Academic, 1965. V. 1.
- Stengel, Erwin. Suicide and attempted suicide. Penguin, 1964.
- Stotland, Ezra and Kobler, A. L. Life and death of a mental hospital. Univ. Washington, 1965.
- Sutton, David. Radiology for general practitioners and medical students. Livingstone, 1965.
- Ulett, G. A. and Peterson, D. B. Applied hypnosis and positive suggestion: in medicine, dentistry, and patient care. Mosby, 1965.
- Valverde-García, Facundo. Studies on the piriform lobe. Harvard Univ., 1965.
- Wolman, B. B., ed. Handbook of clinical psychology. McGraw-Hill, 1965.

The Kansas Medical Society—1965-1966

OFFICERS

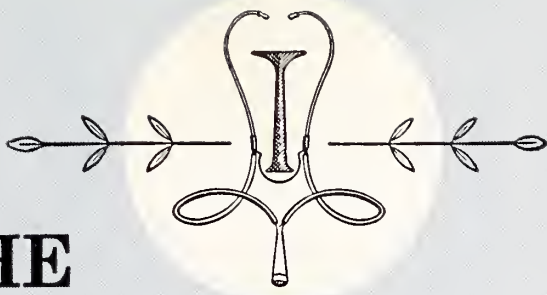
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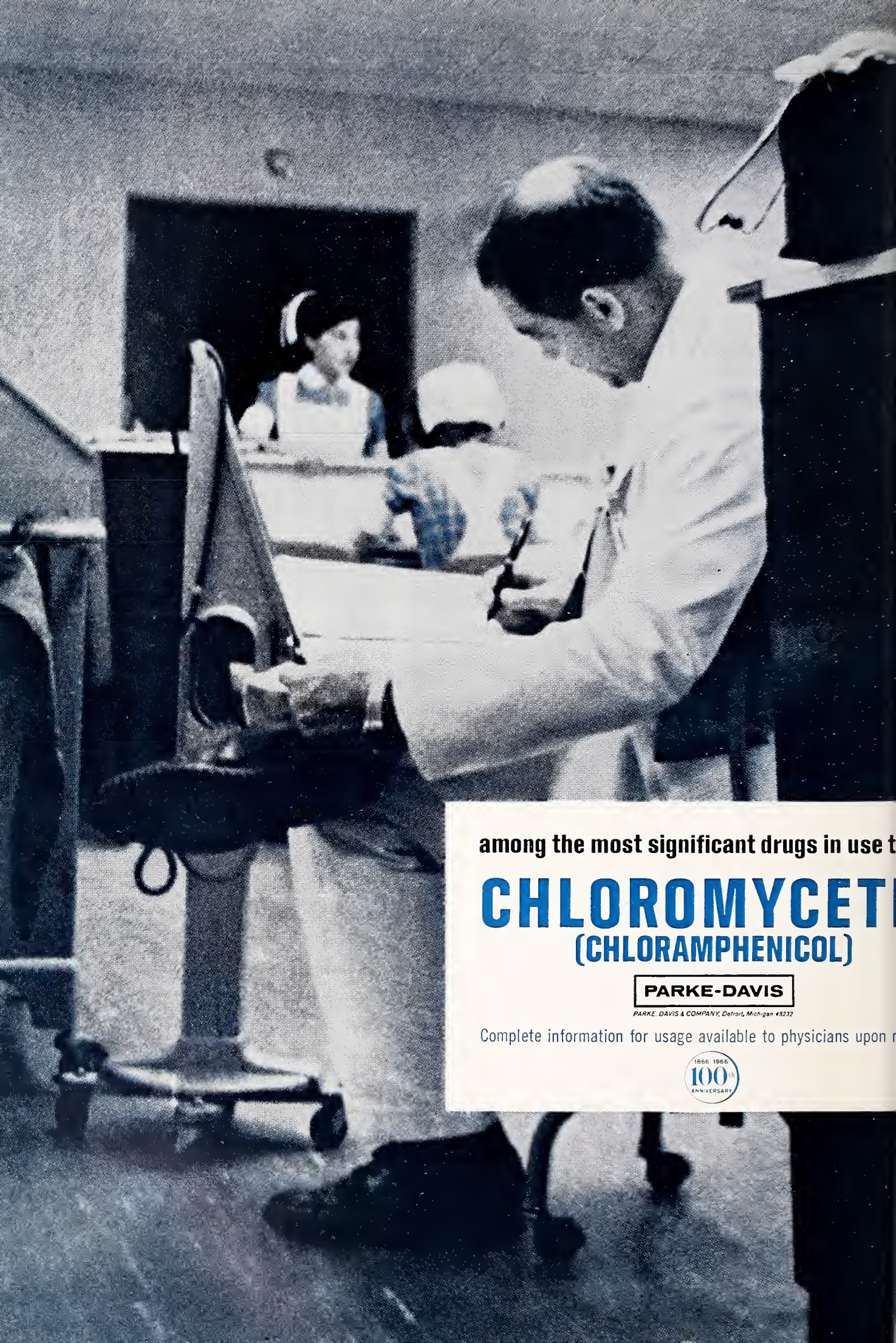


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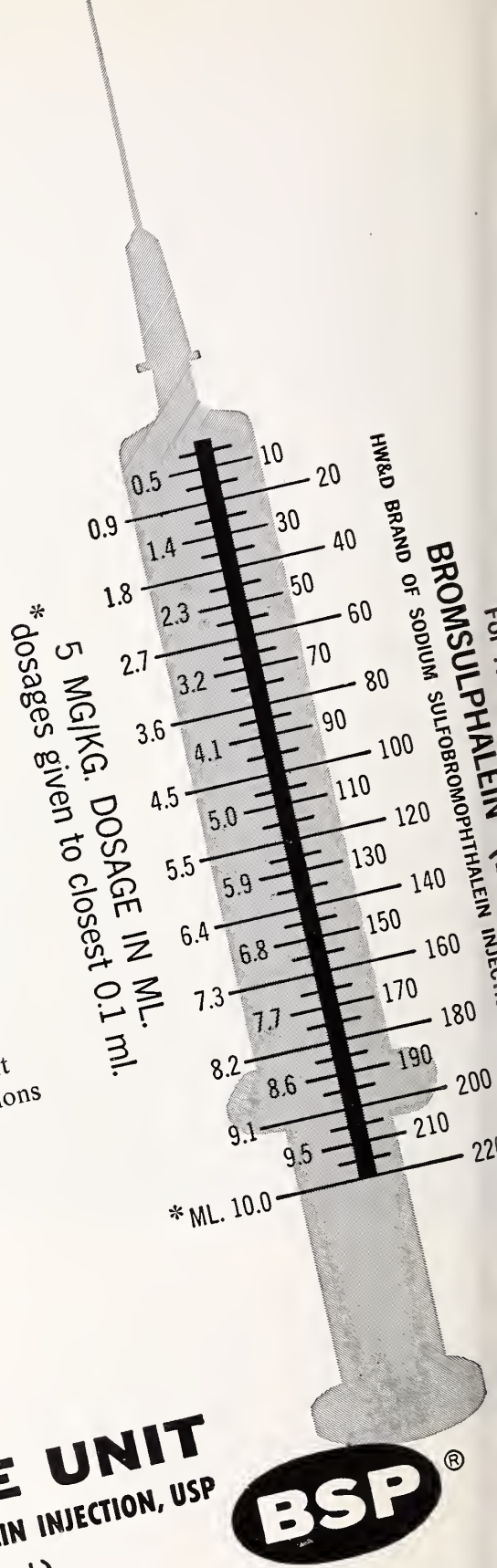
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Simeon B. Bell

ROBERT H. CHESKY, M.D., *Detroit*

Preface

THE PURPOSE of this article, originally written in 1959 as a term paper at the University of Kansas School of Medicine and later revised for this publication, is to create an accurate and reasonably complete narrative on the life of Simeon B. Bell, the pioneer Kansas physician whose endowments of land and money to the University of Kansas made possible the establishment of the Bell Memorial Hospital and the University's school of medicine. Included in that article and this revised version are background materials intended to shed light on events and institutions which figured in certain phases of Dr. Bell's life. Photostatic copies of major source materials were appended to the original article in order to establish in the medical school library a compilation of most of the available materials on the subject's life.

From the time of Dr. Bell's death in 1913 until the present no attempt had been made by any writer to compile all of the known data on the subject. This study was undertaken because of the interest of Dr. E. Grey Dimond in this long-neglected figure. Dr. Dimond, then chairman of the department of medicine, was the writer's faculty advisor. Source materials were found to be rather scanty and the

resulting study, although not without interest and drama, lacks the richness of detail and insight into personality which illuminate true biography.

Dr. Bell himself apparently was not given to oral or written expression, particularly on abstract themes; only three of his letters (of which but one can with certainty be attributed to him alone) have been found. All three pertain to the establishment of the University of Kansas School of Medicine. Dr. Bell's descendants recall few utterances which would give insight into his outlook and philosophy of life. The writings of his contemporaries make little attempt to evaluate Dr. Bell and his life except in the most general of terms.

Dr. Bell lived in several locales and thus his life has certain natural divisions: family and boyhood in New Jersey; education and early manhood in Ohio; the pre-war and Civil War years in Johnson County, Kansas; and life in Rosedale.

Only one source, Perl W. Morgan's *History of Wyandotte County, Kansas, and Its People*,²¹ presents data from all four periods of Dr. Bell's life; this account, however, conflicts in a few details with more authoritative materials and has more of the flavor of country newspaper obituaries than of objective historical writing. Fredericka Bell Brush, Dr. Bell's daughter, apparently was the author of an

Rosedale Kansas Aug 24th 1894

Prof L. E. Sayre

Dear Sir: Enclosed with this letter I send you a Map of Bell's Sub-divisions of Lands.

I wish to make some Propositions for your own and others - in instant-looking toward the establishment and Building - first an Hospital - and secondly a Medical College - in Kansas City Kansas. Not quite Kansas City Kas - but where - in Road where Kansas City Kansas - Rosedale - Kansas City Missouri and Westport Missouri Corner within each a Tract. - Block 32^{College Park} of Plat - as you may see - is a high Promontory - fronting toward the D. W. Boulevard street so called. Said tract is almost as high as Mount Oread. Elevated - rounded and nicely sloping in front - Isolated, by elevation and struts all round - good water and building stone - complete drainage - a de Sandly Site for an extensive Hospital. - I will Donate College Park for an Hospital Site and Supplement it with Thirty to Fifty Thousand dollars as "Nucleus" of Origin for the Hospital Scheme.

I will Donate a Suitable Site for - Medical College Buildings - all of which is respectfully submitted to the Management of the Kansas State University.

Please Write, or see me at my Office
3200 Southwest Boulevard Topeka Kas. -

Respectfully S B Bell

article⁵ in a 1914 issue of the *University of Kansas Bulletin* which provides basic information about the Ohio and early Kansas periods. (The introduction to the article states that it was written by one of Eleanor Taylor Bell's daughters, and Mrs. Roy Filkin,⁹ wife of one of Dr. Bell's grandsons, states that she strongly believes the article to typify Mrs. Brush's style of writing.) Oliver H. Gregg, author of an early history of Johnson County, Kansas,¹¹ offers the best account of Dr. Bell's harried existence during the Civil War, and a *Kansas City Star* feature story¹⁶ of 1907, based on interviews with Dr. Bell himself, confirms much of Gregg's colorful material.

Special mention should be made of correspondence with Alfred E. Perlee of Sussex County, New Jersey²⁴ and Dr. Elizabeth Reed,^{25, 26} a Mansfield, Ohio, general practitioner and local medical historian, both of whom searched the records in their respective locales for mention of Dr. Bell and his family, and were diligent in furnishing appropriate background data on the respective periods of Dr. Bell's life. Roy Filkin⁹ and Robert Bell Rose,²⁹ grandsons of Dr. Bell, were interviewed at length and furnished several new facts and confirmed many known ones. Other newspaper accounts^{14, 15, 17-19} were of major importance.

A comment about the spelling of certain proper names is necessary: Dr. Bell's father's name is variously spelled "Jabez" and "Jabesh"; the writer has chosen to use the latter since it is the spelling used in the family Bible (except in direct quotations, when the spelling of the original source is retained). Connelly's⁸ spelling of "Quantrill" is used because he has done the most extensive research on the border warrior's life; the same exception as above applies to direct quotations. The question of "Aubry" or "Aubrey" for the name of the village near which the Bells settled in 1857 was still a live one when this paper was originally written; the two highway signs on the north and south edges of the city limits spelled the name differently. The difference has been resolved in favor of "Aubry," which is the spelling also used by Gregg, the major source in connection with this period of Dr. Bell's life.

Family and Early Life

Most of the known facts about the family and early life of Simeon B. Bell are summarized in Morgan:²¹ he was born in Sussex County, New Jersey, on May 13, 1820, and was the son of Jabesh and Gertrude Nichols Bell, both of whom also were natives of New Jersey. The elder Bell was said to be a millwright and built "the old Over-Shot waterproof mills all through the east"; in 1832 he moved to Richland County, Ohio, with his family and was

engaged in farming and mill construction for the remainder of his life. An "old-line Whig" in politics, Jabesh Bell was said to be actively interested in community affairs.

A daughter of Dr. Bell, Mary Jane Bell Filkin,⁹ has placed the site of the original Bell family home near Tibb's Meadow in Sussex County; the author has not been able to locate this site on modern maps. A Jabesh Bell was witness to the Will of John Loder of Sandyston Township, Sussex County, on March 20, 1816, according to records still extant in Sussex County.²⁴ Sandyston Township is near the present-day village of Hainesville, about 50 miles northwest of New York City and only a few miles from the Delaware River, which forms the northwestern boundary of New Jersey.

The Bell family which founded Bellville, Ohio, a Richland County village near which Jabesh Bell and his family settled in 1832, were of Scotch and English descent.²⁶ Since these Bells also came from Sussex County, it seems probable that Jabesh Bell was related to them and followed them to the West. Dr. Bell also had Dutch blood, according to one of his grandsons;²⁹ conceivably this came from his mother's side of the family. These are the only two available clues to Dr. Bell's ancestry.

Bells from Sussex and Morris (which adjoins Sussex) counties fought in the Revolutionary War,²⁴ but the relationship of these men to Jabesh Bell is not established.

Copies of the record from the family Bible of Jabesh and Gertrude Nichols Bell are available^{9, 29} although the whereabouts of the Bible itself are not known. This record shows that Dr. Bell was the tenth of 15 children. His parents were married on April 9, 1801. Jabesh Bell was born on June 28, 1783, and died on September 4, 1851. The corresponding dates for Gertrude Nichols Bell are July 6, 1785, and September 21, 1859. Thus, he was 17 and she 15 years old when they were married. Mrs. Roy Filkin⁹ states that the couple ran away from home to be married.

Although Morgan states that Dr. Bell's parents lived the remainder of their lives in Richland County, Ohio, after moving there in 1832, a newspaper article about Dr. Bell¹⁹ states that the family moved farther west to Wood County, Ohio, in 1838. A biographical sketch on Dr. William Wiley,¹ who married one of Dr. Bell's sisters, would seem to support the newspaper account, since it states that Dr. Wiley practiced medicine in Wood County and met his wife there.

Huldah Jane Bell Beeson, another sister of Dr. Bell, and her husband, John Beeson, came to Kansas shortly after Dr. Bell and his wife moved westward

from Ohio; the Beesons settled near the Bells in Johnson County¹¹ and later, after Dr. Bell moved to Rosedale, they lived near him on Southwest Boulevard.²⁹

Horatio Walker Gates, the son of Dr. Bell's elder sister, Anna Marie, came to Kansas City in 1887 from Ohio, and established the Gates Funeral Home in Rosedale several years later. He was the first licensed embalmer in Kansas.² Another nephew, Chris Bell, accompanied Dr. Bell when he came to Kansas⁵ and was a farmer near DeSoto, Kansas, for the remainder of his life.²⁹

No attempt was made by the author to trace other brothers and sisters of Dr. Bell and their descendants, who fell outside the scope of his life and relationships in Kansas and thus probably had little effect upon his life.

None of the available accounts of Dr. Bell's life contains any reference to the details of his life in New Jersey or any schooling that he might have had there.

Dr. Bell in Ohio

The central facts of the Ohio period of Dr. Bell's life are fairly clear, although some sources disagree about relatively minor points. The Bell family moved to Richland County in 1832, when Dr. Bell was 12 years of age,^{19, 21} settling near Bellville, which had been founded between 1813 and 1815.²⁶ In 1838 Jabesh Bell and his family moved to Wood County. Whether Simeon Bell accompanied or preceded them there is not known; he did, however, carry mail for a number of years in the western part of the state.¹⁹ In 1841, at the age of 21, he began his formal education at the Norwalk Seminary.¹⁹ After an unknown number of years of study there, he taught school in Lexington, a Richland County village six miles northwest of Bellville.⁵ In Lexington he met Eleanor Taylor and married her in 1846.⁵ Over the next ten years he began to read medicine, attended medical school in Columbus, and returned to the Richland County seat of Mansfield to practice medicine.⁵

Morgan²¹ states that Dr. Bell was reared and educated in Richland County, and after completing the curriculum of the public schools, attended Norwalk Seminary in Norwalk, Ohio. However, in view of two newspaper accounts^{19, 34} written during Dr. Bell's lifetime and 20 years apart, it seems doubtful that Dr. Bell ever attended school before he entered Norwalk Seminary.

The Kansas City *Sun* article¹⁹ carries the following account:

For a number of years before the advent of railroads he carried the mail, on horseback, in the interior of the state, mostly in the western preserves. In 1838

his parents moved to Wood County, Ohio, and in 1840 he attended at Ft. Meigs, one of the greatest political "log cabin" gatherings ever held in the United States. In 1841 he entered Norwalk Seminary.

This article was written in 1906. Previously, in 1886, the *Wyandotte Gazette*³⁴ included the following statement in an account relating to Dr. Bell's desire to endow an institution of higher learning in Rosedale:

Dr. Bell, when 21 years of age, was unable to either read or write, and was obliged to work his way through school and college, depending entirely on his own efforts.

It seems probable that these accounts were written with Dr. Bell's full cooperation, and thus the weight of evidence seems to be against the Morgan account.

According to Williams,³² Norwalk Seminary was closed in 1846 because of heavy indebtedness. As a result, no direct record of Dr. Bell's attendance there can be obtained. Williams gives the following account of the nature of the institution:

On the 11th of November, 1833, the Norwalk Seminary was opened in the academy building, under the auspices of the Methodist Episcopal Church, with the Rev. Johathan E. Chaplin as principal. . . .

The Seminary opened with the principal and one male assistant, and three female teachers. The school was opened successfully, and was prosecuted vigorously, and, at the close of the first year, showed an average attendance of 100 pupils. . . . During the second year a course of lectures in chemistry was delivered by Dr. Bigelow, and a philosophical apparatus was procured for the use of the school. The number of pupils rapidly increased as the character of the institution became more widely known, and at the end of the second year they reported 189 in attendance; and a very large proportion of this number was made up of young ladies and gentlemen of more advanced years, who labored with unusual zeal in acquiring an education. . . .

At the annual commencement in 1842, the catalogue of the seminary showed 391 students, and the examining committee spoke in the highest terms of the proficiency of the students and the zealous and faithful labors of the instructors in the various branches. . . .

Williams does not state the normal length of time which students spent at Norwalk Seminary, and thus we do not know when Dr. Bell left that institution and began a school teaching career which was to last until at least 1850.

Mrs. Brush's article⁵ furnishes the following skeleton of facts to cover the next decade of Dr. Bell's life:

Eleanor Taylor Bell . . . was born of Revolutionary stock in the village of Lexington, Richland county,

Ohio, on August 15, 1824. Dr. Simeon B. Bell . . . when a young man came to Lexington as a school teacher. Here he met Eleanor Taylor, whom he married on January 1, 1846.

While in Lexington Doctor Bell began to "read medicine," as was the custom at that time, under Dr. John Lambert, to whom he felt greatly indebted for the thorough foundation of his medical training. Shortly after their marriage Doctor and Mrs. Bell moved to Columbus, Ohio. There they rented a large house and Mrs. Bell opened their home to twelve medical students, while Doctor Bell registered in the Starling Medical College. This method of life continued until he was graduated, when they moved to Mansfield, the county seat of Richland County, where he practiced medicine for several years.

According to Dr. Reed,²⁶ Dr. John Lambert is not mentioned in any available Richland County histories, and no record of him is present in any other possible sources, such as records of wills, deeds, marriages, and the Census of 1850. She states that he is not mentioned in the county histories of Knox and Ashland counties, which adjoin Richland County. It seems probable that a physician to whom Dr. Bell was exceedingly close must have indeed existed, but that Mrs. Brush must have been mistaken about his name. Substantiation for the other facts mentioned by Mrs. Brush can be found.

A marriage record²⁸ shows that Dr. and Mrs. Bell were married by Truman Strong, who is identified by Graham¹⁰ as a minister of the Universalist Church. A record of the 1850 Census⁶ lists Bishop Bell, school teacher, 29 years old, and Eleanor Bell, 25, with two children, Gertrude, 2, and Taylor, 5 months. Both of these children died before the Bells moved to Kansas. The census record indicates that the Bells still were in Lexington in 1850. Class lists from the Starling Medical College²³ show Dr. Bell with the class of 1853, and the Kansas City *Sum* account¹⁹ states that Dr. Bell attended three courses of lectures at Starling. Therefore, he must have begun his schooling there in 1850. Records from the Richland County Register of Deeds Office²⁷ show that Dr. Bell bought property from Mrs. Bell's brothers in 1848 and sold it back in 1853 to one of them. According to Dr. Reed,²⁶ Mary E. Bell bought a lot in Mansfield in 1854 from a John Bell; the lot, she states, lies two blocks from the court house, and would have been at the time a very good address for a doctor. No mention is made of Dr. Bell in Dr. Reed's article²⁵ on Mansfield physicians. Graham¹⁰ states that a S. B. Bell supplied the pulpit for 18 months in the Mansfield Congregational Church sometime after 1854 in the absence of the regular pastor. It is highly doubtful that this was Dr. Bell, for he had no church affiliation, according to his grandchildren.^{9, 29}

According to Mrs. Filkin,⁹ Eleanor Taylor Bell was descended on her mother's side from Amariah Watson, who was an officer in the Revolutionary War and founded the city of Lexington. He was a millwright, and indications are that he was from Hartford, Connecticut, since it is known that both of his wives were from Hartford. John Bennett Taylor, Eleanor Taylor Bell's father, was from Westport, Connecticut. The family owned a carding mill in Connecticut, and according to Graham,¹⁰ John Bennett Taylor and his two brothers, who came to Richland County in 1816-19, erected a horse powered mill in their new abode. Graham describes them as "sharp, shrewd, go-ahead Yankees from Connecticut," and states that "they came here to make money, and most of them succeeded." One of Eleanor Taylor Bell's brothers, John, went overland to California in the 1849 gold rush, and returned by ship around the southern tip of South America with more than \$5,000 in gold, according to Mrs. Filkin.⁹ Eleanor Taylor Bell's mother, the former Elizabeth Ayres, was a granddaughter of Amariah Watson. After the death of John Bennett Taylor, she married Ambrose Baldwin, and the couple came to Ottawa, Kansas, sometime later.

Mrs. Roy Filkin⁹ states that Eleanor Taylor Bell was described to her as being a very slender, tiny woman, and "quite the belle" in social gatherings. Her mother, reputedly an excellent seamstress, sent her attractive clothing even after the couple came to the wilds of Kansas. Apparently the two were very close, and Eleanor Bell, according to letters from relatives in Ohio now in Mrs. Filkin's possession, was very homesick for her mother after the Bells moved to Kansas.

Of Dr. Bell's training at Starling Medical College nothing specific is known, except the date of his graduating class mentioned above.²³ However, considerable information is available about the institution itself. According to the same source, the Starling Medical College was founded in 1847 and was an outgrowth of the Willoughby Medical College of Willoughby, Ohio, which had been founded in 1834. The Willoughby faculty moved to Columbus in 1847 and the school was re-named in honor of Lyne Starling, who donated \$35,000 and a building site for the school. The school continued under the Starling name until 1907, when a process of amalgamation of all Columbus medical schools under the aegis of the Ohio State University began. From 1907 to 1914 the school was known as the Starling-Ohio Medical College, and from 1914 to the present the school has been the College of Medicine of the Ohio State University. A total of 2,600 students were graduated while the institution was under the Star-

ling name. There were 39 students in Dr. Bell's graduating class.

Apparently the school had a three-year curriculum at the time of Dr. Bell's attendance. He attended three courses of lectures there, and the first mention of a change in the length of the curriculum comes in 1899, when a change was made from a three-year to a four-year schedule. No list of courses offered at the time of Dr. Bell's attendance was included; however, a complete list of professors, their years of tenure, and the courses they taught, was combined in tabular form. From this table, the writer compiled the following list of courses for which professors were listed between the years of 1850 and 1853: obstetrics; theory and practice of medicine (physical diagnosis); materia medica; therapeutics and medical jurisprudence; chemistry, botany and toxicology; surgery (operative and clinical); anatomy; and physiology and pathology.

Facilities and equipment were primitive. When the school first moved to Columbus, the Clay Club Rooms, a "large, wooden shanty which had been erected by the Whigs during the presidential campaign of 1844 (when Henry Clay was not elected)," was commandeered by the school. The result can be easily visualized from the description given:

By some legerdemain on the part of the architect and strict economy of space, an amphitheater of sufficient size to seat 150 students, and room for the teacher and his table, was devised at the front, on Gay Street, while in the rear was a room for anatomical purposes, and two or three diminutive departments (cubby-holes) for the chemical apparatus, charts, and other appliances. The seats of the amphitheater rose at a decidedly acute angle, and the upper tier was so close to the ceiling that a tall student found it necessary to lean forward to prevent his head from coming in contact therewith; consequently the little fellows were soon found on the top seats. Withal, the Club House did not furnish sufficient room. There were six or eight recitations and lectures daily, two often coming at the same hour, and additional accommodations were found in the basement (the Sunday School room) of the Wesley Chapel. . . .

The accommodations and equipment of the new school were the same as those of its predecessor, which, as already stated, were meager in the extreme. There was no library; no museum; nor laboratories save that of the chemist, which was small and but poorly equipped; and but one microscope, already well advanced in years, furnished with a single objective, which had power to magnify about one hundred diameters. Nevertheless, as microscopes were not then common as now, the instrument was regarded by the students, and, I think, some of the Faculty as well, with something akin to awe, and its feeble revelations were regarded as little short of the miraculous.

A new building was begun in 1851, but it is not

clear when Dr. Bell and his fellow students began to obtain relief from the congested conditions under which they were seeking professional knowledge.

As was stated earlier, there is no reliable record of Dr. Bell's life in Mansfield, where he practiced medicine until 1856.⁵ The only record of their presence is the purchase by Mary E. Bell, mentioned above,²⁶ of a town lot from John Bell (Dr. Bell had an elder brother named John, according to the record from the family Bible). Dr. Reed, who has written a rather extensive article on the practice of medicine in Mansfield,²⁵ does not mention Dr. Bell. Morgan²¹ states that he "built up a large and lucrative patronage" in Mansfield, but Mrs. Brush⁵ states that her parents came to Kansas "without a dollar." Since Morgan furnishes several other examples of grandiloquent prose, it seems probable that Mrs. Brush is the more trustworthy source. Dr. Reed's article mentioned above perhaps gives the best explanation for the Bell's move to Kansas:

In 1850 Mansfield had 31 physicians for a population of 1,733, or one doctor for each 55 potential patients. This was a definite over-supply, and in 1858 the number had dropped to 15.

This statement also would tend to confirm Mrs. Brush's account of the family's financial status at the time of the exodus from Ohio.

Kansas and the War Years

Mrs. Brush⁵ states that in 1856 Dr. Bell, with his brother-in-law, Bennett Taylor, and his nephew, Chris Bell, started west overland in a wagon. This slow method of traveling and the serious illness of Chris caused the group to winter in Iowa, and then Dr. Bell returned to Ohio for his family in 1857.

The reason why the Bells first settled in Johnson County is perhaps best given by Gregg:¹¹

Among those who visited the locality in the spring of 1857 was Dr. S. B. Bell, who had been for several years a resident of western Missouri. He found every quarter section occupied by a family or "actual settler," and as it was so thickly settled, he concluded it would be an excellent locality for the practice of his profession. He accordingly secured a claim, and in the following spring removed there with his family. Pretty soon after the land office was opened for the entry of the lands, and in a month or two therefrom the township was about as destitute of inhabitants as though the plague had swept over. Nine-tenths of the "actual settlers" as soon as the titles were secured, had sold out their claims to speculators for what they would bring and had departed to give an air of extensive population to other localities where more claims could be obtained. The writer of this remembers that some two or three years after, while assessing the real estate of the county, he rode five miles in a straight line

across the township and did not see a man, woman, or child, nor a house save at a distance of a mile or two on one side. All of which shows that medical gentlemen looking for locations may be justified in regarding the settlers of new countries very much as the old darkey did white men in general—"mighty onsartain."

Although Gregg is in error on Dr. Bell's place of previous residence, he is in agreement in other respects with the accounts of this period, and is perhaps the most voluminous of those who wrote about Dr. Bell's sojourn in Johnson County.

The family history, written by Mrs. Mary Jane Bell Filkin,⁹ relates that Dr. and Mrs. Bell first visited Leavenworth with the intention of settling there, but immediately upon their arrival they witnessed a street fight in downtown Leavenworth which left them apprehensive about the peacefulness of the town's character. They left immediately. Another letter in the possession of Mrs. Roy Filkin relates that the trip from Ohio was made by covered wagon. Fredericka was two years old and Mary Jane, who was born while Dr. Bell was in Iowa, was nine months old when the family made the trip.

Before the outbreak of the Civil War and the raids on Johnson County, which began in late 1861,¹⁶ the Bells spent difficult but productive years in making their new abode habitable. Mrs. Brush⁵ describes these years as follows:

When not occupied professionally Doctor Bell and his nephew, Chris Bell, cut timber from the banks of the Big Blue, on a Shawnee Indian reservation near, to build a home. On February 2, 1858, they moved into the log farmhouse which they had built. Their nearest neighbors were only five miles away, but there was no other physician within twenty-five miles. Doctor Bell's practice kept him very busy. Money was scarce, but as the farm must be equipped, Doctor Bell took live stock in payment of bills; and in 1861, on the breaking out of the Civil War, these young people, who had come to Kansas without a dollar, were well-equipped farmers.

Not all was sweetness and light, however. The greatest drought in Kansas history occurred in 1859 and 1860,³ and 16 months passed without a drop of rain. However, the political skies were cloudy during that period, and the turbulence relating to Kansas' political future must have caused the Bells great anxiety. The county was predominantly Democratic when the Bells came to Kansas, and Gregg¹¹ states that it remained so in all elections before 1862. Dr. Bell's minority position is clearly brought out in Gregg's tally of the results of the voting on the Lecompton Constitution in Aubry Township, where the Bells had settled, in 1858. Dr. Bell cast one of two votes against the document, and eight votes were

cast for it. Nichols²² clearly shows how the alternative offered under the Lecompton Constitution were not really alternatives at all to anti-slavery voters. The document, she states, offered a choice between (1) a constitution guaranteeing full freedom to slavery, and (2) a constitution prohibiting slavery, except that the right of property in slaves already in the territory should in no manner be interfered with. She comments:

This alternative, free soilers held, was like submitting to the ancient test of witchcraft, where if the accused, upon being thrown into deep water floated he was adjudged guilty, taken out and hanged; but if he sank and drowned he was adjudged not guilty—the choice between the two being immaterial.

The document was eventually rejected by the voters by a 7-1 margin, paving the way for the Wyandotte Constitution under which the state gained admission to the Union.

Rural peace and quiet came to an abrupt end with the outbreak of the Civil War, Gregg states:¹¹

Lying as it did on the border of Missouri—the worst part of Missouri, too, where the adherents of rebellion (sic) were most numerous and rampant—the township was most unfortunately situated. With the first outbreak of hostilities the greater number of citizens left, some going into the union army, some to the rebels, and others to less exposed localities. A number of the best citizens however decided to remain, hoping to escape molestation by adopting a peaceful, non-committal policy. The community was divided in sentiment, some few being in sympathy with the union cause, and the rest, who were principally former residents of Missouri, inclined to pray for the success of the rebellion.

It was equally unsafe however to express an opinion on either side. If a citizen was outspoken in favor of the union, only two or three hours time was required for a squad of bushwhackers to drop in upon him from across the line for investigating purposes. If, on the other hand, he said a word in favor of the south, even less time was necessary for a few wide awake jayhawkers to express their dissent by stripping him of every portable article about the premises. Hence it is scarcely necessary to say that a very decided state of non-committal affairs existed indeed.

There were two or three union men however, who did not attempt to conceal the fact that their sympathies were strongly with the union cause. They were not noisy or demonstrative in expressing their views but when asked, plainly and decidedly announced themselves as union men, and hopeful of the success of the union cause.

One of the most out-spoken of these men was Dr. S. B. Bell, previously mentioned. As a natural consequence he was soon regarded with no friendly feeling across the line, and his prospects in regard to personal safety were not of the most assuring nature.

Dr. Bell himself was, in 1907, to describe the next three years¹⁶ as "like dropping into a hornets' nest."

. . . those Missourians were always up to a lot of devilment. They robbed me, beat me, cut me, and tried to hang me. But I lived through it all. . . .

Connelley⁸ relates that up to the beginning of the year 1862 the guerillas acted disjointedly, and only by March was Quantrill able to gather enough men to begin operations on a large scale. One of these disjointed efforts mentioned by Connelley and best described in the *Kansas City Star* feature story of June 30, 1907¹⁶ constituted Dr. Bell's first narrow escape from violent death:

November, 1861, a stranger from across the border went to the home of Dr. Bell in Aubrey to warn the doctor that the bushwhackers were plotting to murder him.

The man was old and the doctor persuaded him to stay at his house that night. The doctor paid little attention to the threats that had been carried to him. The stranger retired to the loft in the log house, but not to sleep. He walked to and fro until past midnight, often gazing out of a little window at one end of the loft. About 2 o'clock in the morning the doctor heard him cry out:

"They're coming, Doc, they're coming!"

Within a few hundred yards of the house something like 200 horsemen were approaching. Dr. Bell jumped from his bed and without waiting to dress, rushed through the back door, carrying his clothes. The horsemen saw him and fired several times. A cornfield was near and the doctor made for it. The firing continued.

The bushwhackers entered the house, took what they pleased and went away. Mrs. Bell and a daughter searched in the cornfield expecting to find Dr. Bell dead. No trace of him was found. The next morning he returned home unhurt and little the worse for his night's experience.

Gregg¹¹ relates substantially the same story, although he mistakenly dates the event in November, 1862. He attributes the attack to "the Cassady band," and states that the group also was attempting to kill A. J. Gabbart, another northern sympathizer.

Mrs. Brush⁵ quotes the old neighbor from Missouri as saying that "Quantrell's men were coming," and that the gang captured and tortured the old man for warning Dr. Bell of the impending attack. It seems most doubtful that Quantrill indeed was involved, for Connelley,⁸ who has written the definitive volume on the border chieftain, writes that Quantrill had only seven men in his band at Christmas time in 1861—at least one month after the attack on Dr. Bell. Apparently the *Kansas City Star* story quoted above is incorrect in stating that the Bells lived in Aubrey at the time of the attack, for Mrs. Brush

states that her mother was so frightened by this experience that she insisted on moving into the town from their farm, which was only three miles from the Missouri line. Eleanor Taylor Bell's brother, the Brush account continues, had a general store in Aubrey, having come west sometime after Dr. and Mrs. Bell arrived. Dr. Bell bought the stock of general merchandise and the family moved into the back room of the store. The *Star* story also probably exaggerates the number of horsemen involved in the raid.

From this time onward, Mrs. Roy Filkin states, Dr. Bell always kept a field of corn planted right up to his back door, and stored a water-tight chest filled with food, clothing, and blankets in the cornfield.⁹

The next raid was a slaughter to go down in history as the Sack of Aubrey; this raid was perhaps the first of Quantrill's major exploits, although later raids on Olathe and Lawrence were to overshadow it in terms of total numbers killed. Connelley⁸ devotes five pages to the raid without mentioning Dr. Bell, and dates the attack as having occurred on March 7, 1862. Gregg¹¹ also treats the incident thoroughly, with great emphasis on Dr. Bell's role. Mrs. Brush⁵ gives an account which is brief and inaccurate as to date.

Connelley gives no reason to account for the raid, but Gregg states that Quantrill and his men were gunning for four Aubrey men who were known to have been aiding and abetting the jayhawkers who had been making raids into Missouri in the vicinity. Three of the four were killed during the raid, and the fourth a few months later, according to Gregg. Another reason for the raid, Gregg relates, was that Union troops stationed in Aubrey following the November, 1861, raid had crossed the Missouri border a short distance and killed an ardent Southern sympathizer named Billy Bryant. The troops had been removed from Aubrey by the time of the raid.

On the morning before the raid, five Aubrey men, including a father and a son, set forth for the Bryant farm to obtain some honey from several hives of bees left behind by members of the Bryant family, who left the region after Billy Bryant's death. Early in the evening shots were heard in the direction of the Bryant farm. The men were never heard of again and their bodies were not found, but presumably they were killed by Quantrill's band. About sunrise the morning of March 7 Quantrill and his men rode into Aubrey. Dr. Bell was one of the first to discover their coming, Gregg states:

He immediately started to run across the fields, hoping to reach a ravine and hide before they could overtake him. He was too late, however, as a burly

ruffian saw him and started in pursuit. He fired one shot with his carbine and six with his revolver, without effect but finally overtook the doctor and captured him. The long chase and bad shooting had put him in a terrible rage, and having no more loads in his weapons his first act was an attempt to remedy the matter by beating his unfortunate prisoner's brains out with the heavy revolver. Bell managed by warding the blows off with his hands, to keep his skull from being crushed, but in less time than it takes to tell it, his head, face and arms were badly cut and mangled. While the ruffian was thus engaged in this laudable work a comrade rode up and interfered, saying, "wait until you see whether he needs killing or not." As the bushwhackers had several friends residing in the place, and Bell was completely disguised by the blood that streamed from his numerous wounds, this advice appeared timely, and accordingly the prisoner was taken back and put under guard with other captives.

Later, Gregg relates, Dr. Bell was ordered by Quantrill to care for the wounded, which he did despite his own injuries. After the fight was over the bushwhackers also helped themselves to the goods in Dr. Bell's store, took a number of horses, and departed.

It would seem logical to inquire why Dr. Bell's life was spared in this instance, when he had been the object of such a concerted attack only a few months earlier. The answer may lie in the testimony of Mr. and Mrs. Roy Filkin⁹ that the Bells knew Quantrill personally and even socially before the war. Although there is no other confirmation of this fact, it is said that Quantrill, an Ohioan by birth, lived near Spring Hill, which is about eight miles west of the Aubry-Stilwell area, for a time in 1857 and 1858;¹¹ Connelley,⁸ however, states that he had a claim near Stanton during this period of time. Quantrill, who later taught school at Stanton in Miami County, became acquainted with a teaching colleague there named Abraham Ellis. Ellis, as fate would have it, was traveling through Aubry at the time of the 1862 raid, and was shot in the head by Quantrill himself. The shot was deflected by a sash of the window through which Ellis was peering, however, and was not fatal. Quantrill was apologetic for shooting his old friend, however, and showed him every kindness. Thus, it is probably not inconceivable that he also might have showed mercy for Dr. Bell because of past associations, though it is far from clear how they met.

In addition to the cuts and bruises mentioned above, Dr. Bell received a fractured skull as a result of the beating during the Sack of Aubry, according to Mrs. Brush. She also states that Union troops were returned to Aubry following this incident.

Quantrill's men again cleaned out Dr. Bell's store as they passed through Aubry on their return to Missouri after the Olathe raid in November, 1862, according to Gregg.¹¹ Fourteen people were killed during this raid, Connelley relates,⁸ but the residents of Aubry were warned of Quantrill's approach by Black Bob, a friendly Shawnee Indian chief who lived on a nearby reservation, and were in hiding outside town when the border chieftain and his men arrived.

The attack which caused the major permanent injury to Dr. Bell came in 1863, according to Mrs. Brush's account.⁵ Gregg does not mention the incident. Mrs. Brush states:

After recovering Doctor Bell was appointed post physician and surgeon. During the following year, some men came to their store in the night. Upon opening the door Doctor Bell was again struck a vicious blow, fracturing his skull a second time. This fracture nearly caused his death, and left him with a dizziness from which he never fully recovered, having to be led at times. Inasmuch as he was the only physician within twenty-five miles, he had many urgent calls. He left the decision of his action regarding these calls to his wife, and when importuned by neighbors in distress she could only bid him "God speed," though fearing each time he left the house that he would not return alive.

The recovery which she mentions is from the injuries suffered in the Sack of Aubry, and her placing of this attack in "the following year" would indicate that it took place in 1863.

The final raid (Mrs. Brush calls it the seventh and last raid, although she does not describe seven raids) came near the end of the war. Mrs. Brush dates it on January 30, 1865, Gregg on January 30, 1864, and the Kansas City *Star* feature story on June 30, 1865. Mrs. Brush states only that they were burned out by the raid, but Gregg and the *Star* account furnish detailed descriptions. Gregg attributes the raid to Dan Vaughn and about ten other men, while Dr. Bell is quoted in the *Star* account as believing that Jesse and Frank James were involved in the affair. The men, at first masquerading as Union soldiers, came into the store demanding \$1,000 in return for not hanging Dr. Bell and burning the store. Dr. Bell told them he had no money and so was taken with the men as they rode eastward toward Missouri. The store was set on fire. Gregg presents a colorful description of this ride:

For the first time the Doctor gave up all hope. He knew the merciless nature of his captors, the ill will they bore him, and considered his doom sealed. . . . He was not reassured in the least by the act of a burly ruffian, who rode up and grasping the front

locks of his hair, remarked to a comrade that he intended to have that as an ornament to the head stall of his bridle. As they were riding along one of the gang, behind the Doctor, rode up to a fence and broke off a large splinter. The latter heard the sharp snap, and concluded that they had attempted to shoot him, and it was the cracking of a cap. He did not dare to look back, but presently saw the shadow of one approaching with something in his hand that looked much like a bayonet, or long knife. He then decided that as the pistol had failed to go off, it was their intention to stab him, and waited each minute to feel the thrust of a sharp blade in his body. It was the fellow with the splinter, however, who presently rode up, and stuck it under the tail of the horse the Doctor was riding, causing it to perform a very lively circus movement. They all laughed heartily and the Doctor's gloom vanished. He reasoned that while they were in this sportive mood they could scarcely be contemplating a deed of blood. His reasoning was correct for on reaching the end of the lane they gruffly told him to go home and attend to his business—and he did.

According to Mary Jane Bell Filkin's account of the incident,⁹ the men had a rope around Dr. Bell's neck when the intervention of one of the men, whose wife was pregnant and needed a doctor, saved his life. The family had given him up for lost when he returned, and their sorrow turned into joy when they heard the clearing of his throat as he approached. Mrs. Filkin's first childhood memory, she later related to her children, was of her mother with a newborn child in her arms, pleading with Quantrill's men to spare them enough quinine to last the family through the winter.

Gregg¹¹ also relates the story of an incident which occurred before the Sack of Aubry. Dr. Bell was in hiding at the home of his brother-in-law, John Beeson, having anticipated an attack by bushwhackers. Meanwhile, a party of jayhawkers, for reasons not explained, suspected that a rebel sympathizer named Jake Mast was in hiding in the Beeson home. In the confusion and darkness, Dr. Bell shot and killed Isham Helm, the leader of the marauding party. Helm was a Missourian who had been forced out of that state for his loyalist views, and had become a jayhawker in order to get even with his enemies. Dr. Bell shot Helm and made his escape, and did not know until the next day that he had shot a Union man.

Thus, at the end of the war, Dr. Bell had been wiped out, at least in terms of his home and business. However, Mrs. Brush⁵ states that the Bells invested all of their spare money in land during the war, buying out those who were leaving, and had 1,100 acres of land at the end of the war. Mrs. Roy Filkin,⁹ also states that the army reimbursed Dr. Bell for the losses he sustained during the last raid, even

to the point of replacing silverware lost in the fire.

Dr. Bell's status with the Union Army is somewhat uncertain. That he was post surgeon for the men stationed at Aubry seems fairly certain. However, Morgan²¹ and a *Kansas City Journal* account written at the time of his death¹⁴ state that he was in the army and fought at the Battle of Brush Creek just south of Westport in 1864. No mention of Dr. Bell is made in Kansas military records of the period, however. The *Kansas City Star* feature story¹⁶ quotes Dr. Bell as saying that he was a member of the militia, and Mrs. Roy Filkin relates that it is her understanding that Dr. Bell was paymaster for the troops in Aubry in addition to his duties as post surgeon.⁹ Connelley⁷ speaks not only of his participation in the Battle of Brush Creek, but also mentions that he gave his professional assistance in caring for the survivors of the Quantrill raid on Lawrence.

No description of Dr. Bell's practice of medicine during this period exists, and thus the methods he used and the types of cases he was called upon to handle are unknown. Mrs. Mary Jane Bell Filkin⁹ has mentioned an occasion when Dr. Bell traveled far from his home on a bitterly cold night in order to deliver twins. The father of the babies made no preparation for their arrival, and the babies froze to death in the unheated cabin. Mrs. Filkin described the incident as the only time she ever heard Dr. Bell swear; he couldn't imagine anyone so negligent as to allow his children to freeze.

After the fire in 1865, Mrs. Filkin's account relates, the family went to DeSoto, where Bennett Taylor had settled. There they were taken in and clothing was prepared for them (by this time there were four children, Charles and Abigail having been born after the Bells came to Kansas). The family then journeyed back to Ohio for a visit, traveling by way of Nebraska and Iowa to Tishewah, Illinois, by covered wagon. In Illinois they visited Charles Taylor, another of Eleanor Taylor Bell's brothers, and continued on to Lexington by train. Dr. Bell went back to New Jersey to visit relatives there. Robert Rose²⁹ states that Dr. Bell had a steel plate placed in his skull during this trip.

Dr. Bell in Rosedale

It is not clear why the Bells chose to settle in Rosedale after their return from Ohio. Dr. Bell is quoted¹⁶ as having made this statement:

"When they burned my store," Dr. Bell continued, "there was nothing left for me to do but to go somewhere else and start again. It was then, in 1866, that I came to Kansas City. I took the money I had earned practicing medicine and purchased a quarter section of land in the Turkey creek valley, just over the state line

in Kansas. I moved my family on the place and it has been my home ever since."

The war was over and local fighting at an end, and the Bells had more than 1,000 acres of rich land in Johnson County; thus there is no reason to believe that they could not have started anew in their first Kansas place of residence. Possibly Dr. Bell could see that Kansas City's location would soon make it the preeminent city of the region, and that population growth would assure rising property values to the settler who was able to buy land and willing to wait for the prices to rise. At any rate, he acted as if this was his understanding, and in the process became, according to the above source, Rosedale's wealthiest man.

But before success could crown all the efforts of the past 20 years, Eleanor Taylor Bell, weakened by the struggles and hardships of the war years, died. Her death was on January 13, 1866, and came seven weeks after the birth of the couple's tenth child, who later died. Dr. Bell remarried in 1866, this time to Mrs. Margaret Bellis, a native of Ireland, according to Morgan.²¹ To this union was born two more children, Simeon B. Bell, Jr. and Miranda Bell, who later was married to Marshall Haddock. Dr. Bell's second wife obtained a divorce from him after a few years of marriage, but lived not far from him in Rosedale for the remainder of her life. Dr. Bell visited her home frequently to see his children, according to Mrs. Filkin.⁹

Mrs. Filkin states that Dr. Bell operated a general store at the intersection of Shawnee Road and State Line for a time after the family's arrival in Kansas City. It seems doubtful that he continued this business after a house was constructed on the farm he had purchased, however, and operations were begun in earnest there. Mary Jane Bell Filkin's account⁹ tells how the sycamore logs for the new home were hauled to a mill near the old Union Depot, now the stockyards district, to be sawed into boards. She accompanied Dr. Bell on these trips because he still had extreme vertigo from the blow suffered in 1863. There was plenty of work for the children, too, during these years. Charles Bell, interviewed by Schauffler³⁰ in 1947, said he remembered clearing timber from the Rosedale hillside when he was a boy, and it was so cold his fingers grew stiff on the axe handle. He remembers, too, plowing barefoot in the spring. Dr. Bell had the pioneer sentiment that work was good for children. Rose²⁹ recalls being told by his mother, Abigail Bell Rose, that she worked "until she was ready to drop." Mrs. Rose was less than five feet tall. Dr. Bell was no idler himself. As late as the 1880's, according to Rose, he built Bell's Hall, the first lodge building in Rosedale, near his home on Southwest

Boulevard. Assisted in this project by L. H. Rose, who was later to marry Abigail, Dr. Bell constructed a kiln, made all of the bricks for the building, and quarried out huge slabs for footings from rock formations on his property. The building was three stories tall, and contained a store and apartments in addition to the large lodge hall.

Apparently Dr. Bell and his family engaged solely in farming until 1880, when the first sub-division of his lands was platted.³³ This plat, which contains the route of the present Southwest Boulevard, and its acceptance by the city, marked the culmination of a battle for the creation of the boulevard that Dr. Bell had waged for many years. The success of this project probably was the key to Dr. Bell's success in his real estate endeavors, as he himself later acknowledged¹⁶:

When I first bought my land, in 1866, I knew that it would never be worth much until it could be reached by good roads. So I set about to have a boulevard built from Kansas City along the Turkey Creek valley, through Wyandotte county and on down into Johnson County. That was early in the '70s. I said I wanted the boulevard to run through my land diagonally from the northeast corner to the southwest corner and follow the natural course of the creek. Well, sir, they laughed at me and made all manner of fun of me. They said it was not going according to established sectional lines of the government surveyors, and it would make every piece of land cat-a-cornered. They told me I would have to employ an army of men to keep down the weeds, as nobody would travel over such a crazy road. I told them I would take my chances, but they would not even lay out the boulevard.

Dr. Bell then went on to relate how it had taken two court petitions, the first unsuccessful, signed by all the landowners concerned, to bring the city fathers to their senses. The boulevard was laid out 100 feet wide through his property, just as he had planned it, and Dr. Bell even was willing to pay expenses to improve it in addition to turning over the land to the city. He continued:

"Yes, the boulevard has made the land worth \$3,000 to \$10,000 an acre. It would be worth little without it."

This accomplishment assured, Dr. Bell platted additional sub-divisions in 1886 and 1887³³ and launched himself in the real estate business full-scale. He later gave the Frisco Railroad some land for a right-of-way and sold them some more, according to the above source. But perhaps his greatest financial reward came from the sale of about 40 acres to the Missouri Kansas & Texas Railroad for \$3,000 per acre.

Dr. Bell also helped to locate roads along the Kaw River to the west, and from the old Johnson Mission to Argentine—projects in which he had no direct financial interest. At the time of his death in 1913, *The Kansas City Star*¹⁷ stated that Dr. Bell was "the pioneer good roads advocate in Wyandotte County, and he was advocating parks and boulevards when such improvements were given little thought by anyone else."

Dr. Bell's most widely recognized achievement, however, was in the endowing of the Eleanor Taylor Bell Memorial Hospital and the University of Kansas School of Medicine. Just when Dr. Bell first conceived the idea of endowing an educational institution is not known. However, the *Wyandotte Gazette* of December 31, 1886, contains the following story-editorial:³⁴

Bell's Third Sub-Division, consisting of 50 acres of fine residential property situated on the Southwest Boulevard, just west of the state line, will be platted and placed on the market in March, by Dr. S. B. Bell, the owner. . . .

A central feature in this magnificent piece of property is a tract of about five acres lying midway from north to south on a prominent eminence which Dr. Bell proposes to donate to some powerful church or other organization on which to erect an institution of higher learning of a broad and liberal nature, and which he proposes to endow with a large sum of money as soon as it is established. . . .

Dr. Bell desires that the college be inter-state in its nature, and shall be managed by a board of trustees composed of equal numbers of men from Kansas and Missouri. . . .

Dr. Bell when 21 years of age was unable to either read or write, and was obliged to work his way through school and college, depending wholly on his own efforts. He desires now to assist in establishing such an institution that every young man and woman in the country may have college opportunities at the least possible expense.

The plat of Bell's Third Sub-division, filed May 17, 1887,³³ contains a map of a College Park, located south of Southwest Boulevard, where the Bell Memorial Hospital, apparently not then in Bell's mind, was to be built two decades later.

The reason why Dr. Bell later changed his mind and offered land and money to the University of Kansas for a medical school and hospital also is not known. Dr. Bell said in 1907¹⁶ that "it took me a lot of hard work to get a medical education when I was a young man. I want to make it easier for the young men and women of this day and age to acquire a medical education." Dr. Bell's continued interest in the medical profession was strong, according to Roy Filkin,⁹ who remembers his grandfather offer-

ing to pay for the complete medical education of any of his relatives who desired to enter the profession. The desire to help make things easier for young people to obtain an education and a long interest in medicine probably were the major motivating factors in Dr. Bell's choice of the form of his memorial to Eleanor Taylor Bell. It is also possible that, between 1887 and 1894, he perceived that a medical school and hospital for clinical teaching were needed more than a liberal arts institution in this area. In any case, on August 24, 1894, he penned the following letter to Professor L. E. Sayre, then head of the pharmacy and medical training programs at Lawrence:⁴

Dear Sir: Enclosed with this letter I send you a Map of Bell's Sub-division of Lands. I wish to make some Propositions for your own and others—in. . . .—looking toward the establishment and Building—first an Hospital—and secondly a Medical College—in Kansas City Kansas. No not quite Kansas City Kansas—but where—in Rosedale where Kansas City Kansas—Rosedale—Kansas City Missouri and Westport Missourieach other. Block 32 College Park of Plat—as you may see—is a high Promontory fronting toward the Southwest Boulevard street so called. Said tract is almost as high as Mount Oread—Elevated—rounded and nicely sloping in front—Isolated by elevation and streets all round—good water and building stones—complete drainage—a de Dandy Site for an Extensive Hospital.—I will donate College Park for a Hospital Site and Supplement it with Thirty to Fifty Thousand dollars as "Nucleus of Origin" for the Hospital Scheme. I will donate a Suitable Site for Medical College Buildings—all of which is respectfully submitted to the Management of the Kansas State University. Please Write or see me at my office 3200 Southwest Boulevard. Respectfully, S. B. Bell

Mechem²⁰ records that the K.U. regents accepted the Bell gift, valued at \$100,000, on September 13, 1894. Dr. Bell then deeded the land to the University, stipulating that should no steps be taken to build the hospital and medical school by September 1, 1904, according to the *Kansas City Star*,¹⁵ the land would revert to him or to the executor of his estate. The tract of land deeded in 1894, the above source states, contained 101 residence lots to be sold for the purpose of raising funds to erect the hospital, and a seven-acre site for the building itself. The 101 lots, the story states, had a value of about \$60,000.

Taft³¹ reports that Chancellor Snow was enthusiastic about the Bell gift and the proposed site, and he quotes from the Chancellor's 1893-1894 report to the Board of Regents to support this view. However, the legislature was not quick to act upon the matter. In fact, it was not until 1904 that further action was taken, again by Dr. Bell. This time, the *Star*¹⁵ states,

Dr. Bell came to Lawrence and deeded more than 500 acres of farm land in Cass and Jackson counties, Missouri, to the University, and gave an extension to the original time limit to May, 1905. The farm land was valued at \$25,000, and part of it was located very near Swope Park. Dr. Bell also stipulated that should the land not bring \$25,000 when sold, other property would be sold to make up the deficiency. The legislature finally approved the Bell plan in 1905, but Dr. G. H. Hoxie,¹³ the school's first dean in the new Rosedale institution, says approval came only after three Kansas City medical institutions agreed to consolidate under the University of Kansas, and the efforts of Kansas City promoters failed to raise the necessary funds to locate the school there. Schauffler³⁰ quotes Dr. Don Carlos Guffey, a pioneer member of the medical staff, as remembering how Dr. Bell clambered up to the hospital site from his nearby home early in the mornings, just to see how things were going. At 86, Dr. Bell was finally seeing a dream coming true.

The dream threatened to become a bursting bubble, however, and in the last six weeks of his life, Dr. Bell addressed two pleas for continued support of the school, one to Chancellor Strong and the other to the legislature. The first letter, now in the K.U. Medical Center library, was not written by Dr. Bell, but was apparently signed by him. The origin of the plea is thus not clear, for the writer of the letter could easily have been some person interested in keeping the school in Rosedale and who enlisted Dr. Bell's help. Dr. Bell could have dictated the letter, but the style is not similar to the letter of 1894. Dated December 2, 1912, the letter reads:

Dear Chancellor Strong: I am informed that the University expects to ask the legislature for appropriations to develop the medical school and hospital at Rosedale. I hope that this is true; and that the legislature will see fit to grant this request. I should like to see this school and hospital grow and develop into a great institution, caring for all classes of patients through its hospitals and dispensaries. I should like to see it limited only by the suitability of accommodations provided. While it was stipulated in the original gift that there were to be free beds for the poor, I hope that the hospital will never be limited to any class or condition; that the sick of every kind will be admitted—white and colored, adults and children; those suffering from contagious diseases as well as those who are not, the well-to-do as private patients, and the poor free, or with charges suitable to their financial condition. I believe that this institution may be of great good; and it is my wish that through the University, it may develop to the highest possible use for teaching and the care of the sick. Very truly yours, Simeon Bishop Bell

Hoxie¹³ states that strong opposition to the loca-

tion of a medical school on the state's eastern border existed after 1908, and that only after Washburn College closed the doors of its medical school after World War I did firm support develop for the Rosedale location. Wichita and Topeka forces in the legislature maintained a consistent opposition to the school's location, and only their inability to agree on a new site kept the school in its Kansas City location. It was in response to an effort to influence the legislature to move the medical school to Topeka that Dr. Bell's final letter was written. No copy of the letter is available, but the Kansas City *Star* reported it in full.¹⁸ The same problems as to authorship exist as in the case of the previous letter, and in addition the complication of Dr. Bell's terminal illness must be considered. However, the account of his death in the Kansas City *Star*¹⁷ states that Dr. Bell was conscious until a few hours before he died. The previously mentioned story¹⁸ follows:

A posthumous plea from Dr. S. B. Bell to retain and support the University of Kansas medical school and hospital in Rosedale was received in a letter yesterday by the Kansas legislature. Doctor Bell, who died January 16, founded and gave largely to the institution. His letter to the legislature was written six days before his death. It follows:

"It is with the deepest regret I learn that the Commercial Club of Topeka will ask this legislature to remove the medical school from Rosedale to Topeka.

"Several years ago, I gave a large portion of my property to the state with the assurance that the State Medical School and Hospital would be located on it, there to remain for all time. I did this through a desire to do something for my profession and also that I might erect a living monument to the memory of my wife, Eleanor Taylor Bell.

"My home was made on Kansas soil several years before Kansas was given a place among the states of our union, and so great was my faith in her people that I gave deeds in fee simple to my lands and thousands of dollars of my money so that the state might do the thing I so much desired.

"The Chancellor and the board of Regents of the University assured me that any gift would be held sacred for the purpose given. The legislature accepted my property and have sold it and given deeds to it and have taken my money and spent it, and even though I now be reimbursed, to take it away will be a great disappointment to me—a complete shattering of my early and lifelong ambition—and coming as it does in the 93rd year of my life, with my body feeble and my mind having lost largely of its former powers of concentration, I feel it as a great blow.

"Knowing I am nearing the other side, I earnestly ask that the legislature, finally and for all time to come, settle the question of the location of the Medical School that I may, with unshaken faith in the people of my state, die in peace. And as my last request I ask

that the appropriation for the medical school this year be granted.

Because of my feebleness I have asked my son-in-law, L. H. Rose, to represent me. Please write him, and through him, let me know what you will do for me."

Mr. Rose added and signed these words to the letter:

"P.S. Dr. Bell died January 16. I hope that you can carry out his wishes."

Later in the same month, the legislature passed a bill declaring that the school was to remain in Kansas City "for all time to come," and authorized \$2,500 for the construction of a laboratory.

The picture of Dr. Bell in his declining years, obtained mainly from his grandchildren^{9, 29} is that of a man who had worked hard and was now enjoying the fruits of his labor. He made many trips to Ohio and New Jersey, one trip to California, and toured Yellowstone Park in a stagecoach. He remained in good health, and the latter trip was made after the turn of the century, when he was past 80. Until 1909, when Dr. Bell bought his first automobile, a Franklin, he was the proud owner of a team of beautiful horses named Annie Woodruff and Iodum. With both the car and the horses he made frequent jaunts to the farm of his son, Charles, near DeSoto. His daughter, Mrs. Brush, kept house for him following his divorce, but in 1904, or 1905 he purchased the home of his son, Bishop, after which Mrs. Filkin kept house for him. A hired man, Frank Sebolt, lived in the household for more than 20 years.

His grandchildren remember him as a man of strong convictions and a somewhat awesome manner, and Dr. Guffey¹² found him "very positive about what he wanted done, and how he wanted it done." The latter describes Dr. Bell as a "tall, raw-boned, rather homely man—an Abraham Lincoln type."

Dr. Bell suffered a broken hip about 1908, but recovered from the accident completely, according to Rose,²⁹ after being bedridden for several months. Another fractured hip suffered on January 2, 1913, led to his death a fortnight later.¹⁷ Both Dr. Bell and his first wife, who had previously been buried in Union Cemetery, were buried in DeSoto.⁵ All six of his children who lived to maturity survived him.

* * *

This is a record taken from a Bible belonging to Jabesh Bell, printed in 1836 by E. Sanderson. This Bible was given to Mary J. Filkin by Sarah Beeson.

FAMILY RECORD

Jabesh Bell and Gertrude Nichols were married on the 9th of April, 1801.

Jabesh Bell was born June 28, 1783. Died Sept. 4, 1851.

Gertrude Nichols, his wife, born July 6, 1785. Died Sept. 21st, 1859.

Abraham Bell, their first child, born April 29, 1802 and innoculated with the small pox 9 hours after.

Ann Marie born 19th January, 1804.

David James Bell born Sept. 4th, 1806.

John Bell born Jan. 13th, 1808.

William Nichols Bell born Jan. 8th, 1810.

Abby Rebecca Bell born Feb. 29th, 1812.

Sally Eliza Bell born April 13th, 1814.

Pamela Bell born June 26th, 1816.

Charlotte Bell born Sept. 26th, 1818.

Simeon Bishop Bell born May 13th, 1820.

Susan Emelia Bell born June 19th, 1823.

Gitty Miranda Bell born Jan. 8th, 1827.

Jabesh Coleman Bell born May 18th, 1828.

Phebe Dorcas Bell born March 7th, 1830.

Huldah Jane Bell born June 19th, 1831.

Gertrude Bell died Sept. 21st, 1859.

Anthony Thompson Glaze, our grandson, born Jan. 29th, 1831.

Charles Edward Wiley born Sept. 15, 1853.

Ann Jinkens born Sept. 24th, 1849.

Phebe Isabel Wiley born Sept. 4, 1851, died Aug. 17, 1853.

DEATHS

David James Bell, Sept. 14, 1807.

Abby Rebecca Glaze, Oct. 16, 1832.

Pamela Bell killed by fall of a tree April 25, 18...

Jabesh Coleman Bell, Aug. 6, 1833.

* * *

(The writer copied this record from a copy in the possession of Robert Bell Rose, grandson of Dr. Simeon B. Bell.)

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Heart Failure in the First Year of Life

THIS 4-MONTH-OLD WHITE BOY had been symptomatically well until two days before his initial and only admission to KUMC at which time he began to cough and felt warm to his mother's touch. He had been exposed to rubella five days before admission. The day before admission he had anorexia with occasional vomiting. Because of these symptoms and the development of respiratory distress he was examined by his private physician and treated with a penicillin injection. The day of admission the respiratory distress became more severe; the baby seemed weak, and he was referred to KUMC for hospitalization.

The pregnancy of the mother had been complicated by clinical rubella during the first month of gestation. The delivery was full term and spontaneous with a birth weight of five pounds, nine ounces. The physical examination at birth was reported to have been normal except for a cataract of the right eye. The growth, developmental, and feeding histories were normal, the baby having gained five pounds since birth.

This was a very sick, pale, white male infant with moderately severe respiratory distress. The respiratory rate was 60 per minute with some suprasternal and subcostal retraction. His temperature was 38° C.; weight, 4.4 Kg. pulse rate, 180 per minute and rhythmical. The fontanelle was flat and soft. An opacity of the right lens was present; funduscopic

examination of the left eye was normal. The precordium was overactive with both right and left ventricular heaves. No definite thrill was felt. The peripheral pulses were normal and the radial pulses were equal to the femoral pulses. No clinical cyanosis was evident on admission. The liver was palpable 3 centimeters below the right costal margin. The second heart sound was split and accentuated with 3-plus increase in the intensity of the pulmonic component. The third heart sound was prominent at the apex. A Grade III, crescendo, systolic murmur was present at the left sternal border with definite extension into early diastole, and it was at times thought to be continuous. A small hydrocele was present on the right. Rhonchi were heard in the lung fields, but no rales.

The hemoglobin was 11.6 Gm. per cent; hematocrit, 28 per cent; white blood count, 19,600 with 86 per cent polymorphonuclear cells, 3 per cent lymphocytes, 10 per cent monocytes and 1 per cent eosinophils. The blood urea nitrogen was 18 mg. per cent; creatinine, 0.3 mg. per cent. The serum carbon dioxide was 16 mEq/L; sodium, 134 mEq/L; potassium, 5.4 mEq/L; and chlorides, 105 mEq/L. Two blood cultures were taken, but neither yielded growth. A moderate number of *Neisseria* species and diphtheroids were cultured from the nose. The throat cultures yielded a moderate growth of *E. coli* and *Aerobacter aerogenes*. The electrocardiograms and x-rays will be shown.

The infant was digitalized with intramuscular digoxin (0.03 mg. per pound of body weight), and received antimicrobials in the form of procaine penicillin 600,000 units daily and kanamycin 35 mg. twice

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daily. He was placed in an environment with added oxygen. His temperature fluctuated from 37.4° C. to 39.5° C. Cardiac catheterization was done on the second hospital day. All chambers and vessels on the right side of the heart were entered with the catheter, including traversing of a pulmonary artery-aortic communication. Right ventricular and pulmonary artery systolic pressures were equal at 60 mm. of Hg. Intracardiac phonocardiography in the pulmonary artery recorded a continuous murmur which decreased in intensity when 100 per cent oxygen was administered by mask. A 3 volume per cent increase in oxygen content was present in the main pulmonary artery as compared to the right ventricle. The oxygen saturation in the descending aorta was 64 per cent. Cineangiograms were done from the main pulmonary artery. On the eighth day of hospitalization the baby developed cardiac arrest following a feeding. Resuscitation was accomplished with external cardiac massage, but 45 minutes later ventricular fibrillation developed, followed shortly by cardiac arrest and death.

Dr. Mahlon Delp (moderator): Are there any questions for Dr. Racela?

Ronald Strand (student):* Do you have a better description of the hospital course with regards to the duration of oxygen need?

Dr. Luz Racela (resident in pediatrics): He was in respiratory distress from the time he was admitted and was never out of oxygen. Whenever we brought him out of the croupette he became cyanotic.

William Walters (student): What was the febrile course in the hospital? Was there diurnal variation or was it a constant febrile course?

Dr. Racela: It spiked every day, but his temperature would not come down to normal after the first day. It never was normal at any time.

Lyle Weeks (student): Was the patient receiving kanamycin at the time of his death?

Dr. Racela: The child was receiving chloramphenicol about a day before he died.

Mr. Strand: Were sweat electrolytes done on the child?

Don Tillotson (student): Was serum protein electrophoresis done?

Mr. Walters: Were the complement fixation tests for pneumocystis, measles, rubella, or cytomegalic inclusion disease done?

Dr. Racela: None of these were done.

Mr. Weeks: Was a lumbar puncture or a urine culture done?

Dr. Racela: No lumbar puncture was done, and

there was no urine culture because the urinalysis was normal.

Mr. Strand: Were any additional serum electrolytes done other than those we have in the protocol?

Dr. Racela: There were two and they were almost the same. In the second one, the sodium was 146 mEq/L; potassium, 5.8 mEq/L; chloride, 105 mEq/L; and carbon dioxide, 30 mEq/L.

Mr. Tillotson: Was a serum calcium drawn?

Dr. Racela: No.

Mr. Walters: Were signs of meningeal irritation present at any time?

Dr. Racela: No.

Mr. Weeks: Did the infant continue to vomit while in the hospital?

Dr. Racela: No, he did not continue vomiting.

Mr. Strand: Was oxymetry done on the patient while he was breathing 100 per cent oxygen?

Dr. Racela: It was not done.

Mr. Tillotson: When was the patient's murmur first diagnosed?

Dr. Racela: Just before admission.

Mr. Walters: Is there any history of Riley-Day disease in the patient's family?

Dr. Racela: I do not know.

Mr. Weeks: Was the child cyanotic at any time during the hospital course?

Dr. Racela: Almost continuously, and he had to be kept in the croupette for this reason.

Mr. Strand: Was there any history of exposure to tuberculosis?

Dr. Racela: No.

Mr. Tillotson: Were electrocardiograms taken after the second hospital day?

Dr. Racela: They were taken daily.

Mr. Walters: Was the sedimentation rate done?

Dr. Racela: No.

Mr. Weeks: Was there any lymphadenopathy?

Dr. Racela: I do not remember any.

Mr. Strand: Did the patient have a rash at any time during his illness?

Dr. Delp: The patient had a rash before coming into the hospital. It was a rash on the face, and according to the history, his mother thought that it was due to the antibiotic which was apparently tetracycline.

Mr. Strand: Do we know how long before admission?

Dr. Delp: No.

Mr. Tillotson: May we have a better description of the terminal event?

Dr. Racela: The mother took the child from the croupette to feed him and noticed that he was cyanotic. She called us and we placed an endotracheal tube. The child did better for a while, but soon had

* Although a student at the time of the conference in January, 1965, he, like the others referred to as students, received the M.D. degree in June, 1965.

a cardiac arrest. He was resuscitated but arrested again, and attempts at defibrillation were unsuccessful.

Mr. Tillotson: Did the child have any previous respiratory infections or any previous vomiting?

Dr. Racela: We do not know of any.

Mr. Walters: What maintenance dosage of digitalis was he on?

Dr. Racela: We were still adding to the dose at the time of death in an effort to get him compensated.

Mr. Strand: Did the size of his liver change during the hospital course?

Dr. Racela: No.

Dr. Delp: Are there any other questions?

Dr. Marvin Dunn (cardiologist): Was there any difference in the degree of cyanosis in the upper and lower extremities?

Dr. Racela: I do not think so.

Dr. William Ruth (internist): Did the child become cyanotic out of oxygen?

Dr. Racela: Yes, the nurses' notes indicate he had a dusky hue whenever out of oxygen for any time at all.

John Harvey (student): Was a mumps skin test done?

Dr. Racela: No.

Mr. Weeks: Did the child's white blood count remain stable during the course of his illness?

Dr. Racela: Yes.

Mr. Strand: Were cold hemagglutinins done?

Dr. Racela: No.

Electrocardiograms

Mr. Tillotson: This is the electrocardiogram taken on the first hospital day (*Figure 1*). There is a normal

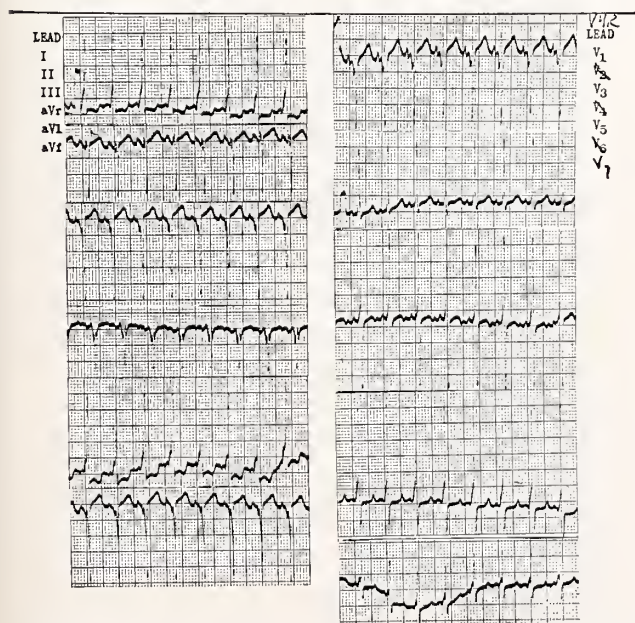


Figure 1. Electrocardiogram taken on June 11, 1964.

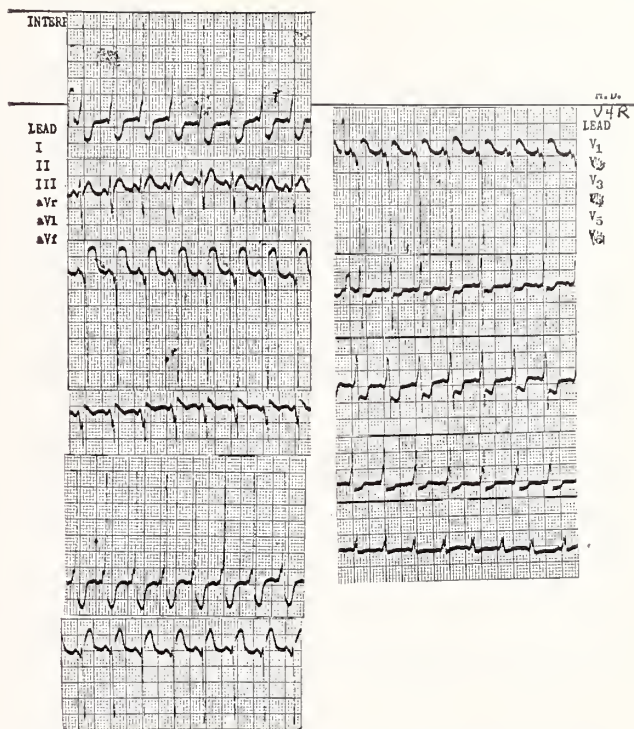


Figure 2. Electrocardiogram taken on June 12, 1964.

sinus rhythm with a rate of about 160 which is the upper limit of normal for a child of this age. The frontal QRS axis is about minus 45 degrees and the P wave axis is plus 90 degrees with a QRST angle of 135 degrees. There is a P-R interval of about 0.06 seconds with a slurred uptake of the R wave in leads I and AVL with a normal QRS duration. This is suggestive of a variant of the Wolff-Parkinson-White syndrome with normal interventricular conduction. The S-T segment is depressed in lead one and lead AVL which is suggestive of myocardial ischemia or strain. The upright P wave in lead V4R and V1 suggests right ventricular systolic overload. There are high R waves in V1, V3 and V5 with deep S waves in V3—which are all suggestive of biventricular hypertrophy. This second electrocardiogram (*Figure 2*) was taken on the second hospital day after the patient had received some digitalis and the notable changes on this electrocardiogram are a deepening of the S-T segments in leads I and AVL with a high takeoff of the S-T segments in leads three, AVF and V4R. These are suggestive of an anomaly in the left coronary artery.

Dr. Delp: Dr. Dunn, do you have any additional comments?

Dr. Dunn: I think this shows biventricular hypertrophy. I really do not think this electrocardiogram shows an anomalous left coronary artery or Wolff-Parkinson-White syndrome.

Dr. Delp: Let us see the x-rays and then the angiograms.

X-Rays

Mr. Walters: The first x-ray taken on the day of admission is a posterior-anterior of the chest (*Figure 3*). I see no bony abnormalities. The heart is slightly above the upper limits of normal in size and there appears to be both a left and a right ventricular component to the cardiac enlargement. There is a diffuse opacity in both lung fields which appears to be denser on the right. There is also a focal patch of infiltrate or a lymph node above the left hilum. A lateral view of the chest taken the same day (*Figure 4*) shows a diffuse infiltrate and cardiac enlargement. It is difficult to see the patch in the left hilum. The diameter of the heart is about one-half centimeter smaller. The chest film taken the day before death shows the diffuse infiltrate that appears similar to the first film. The size of the heart is smaller yet. I consider these x-rays to be compatible with both left and right ventricular hypertrophy and a diffuse bilateral pneumonia possibly of the interstitial type.

Dr. Delp: May we see the cineangiocardiograms now?

Dr. Antoni M. Diehl (pediatric cardiologist), (commenting on the moving pictures): The catheter moves up from below in the anterior projection coming to the tricuspid valve through the right ventricle,



Figure 3. Posterior-anterior film of chest made on June 11, 1964.



Figure 4. Lateral chest film made on June 11, 1964.

and it suddenly takes a curve down the descending aorta. This is the pattern of the curve that we see with the catheter at one end going through the ductus arteriosus, whereas through an aortic septal defect it would come up and around the arch of the aorta and down. To repeat in slower motion, the catheter again is up from below and is in the pulmonary artery. In the left and right pulmonary artery you will see slip of dye coming back through the pulmonary valve in the pulmonary regurgitation. You will also note that there is no dye going through an aortic pulmonic communication into the descending aorta. It goes on through the pulmonary veins into the left atrium and the left ventricle, and then on out the aorta, the great vessels.

Dr. Delp: Now, Mr. Weeks is going to begin our discussion today, and then I want to call on Dr. Diehl and Dr. Herbert Miller. All right, Mr. Weeks.

Discussion

Mr. Weeks: Today we are presented with a case of a 4-month-old boy whose mother contracted rubella during early pregnancy. Although he was well until two days before his admission this patient suddenly developed cough, fever, anorexia, vomiting and respiratory distress. The infant entered a state of congestive heart failure which subsequently responded to digi-

talis. Nevertheless, his condition steadily deteriorated, and despite antibiotic therapy he became progressively worse, developed cardiac arrest, and died.

Over 20 years ago it was observed that maternal rubella in early pregnancy resulted in cataracts and congenital heart defects. Many reports substantiate these and other associated abnormalities. And there was considerable literature that contributed to the understanding of the teratogenic effects of this disease.

The risk associated with rubella is mainly limited to the first trimester of pregnancy. Prospective studies of the incidence of congenital anomalies following maternal rubella range from 11 per cent to higher than 50 per cent. It is generally held that the incidence of congenital abnormalities is correlated positively with early fetal age during maternal infection—thus the incidence of anomalies is highest if maternal rubella occurs within the first month of fetal life.

The teratogenic effects of rubella are as follows: Deafness with secondary mutism, cardiac anomalies, cataracts, microcephaly, and possibly mental deficiency. Other less frequent abnormalities are microphthalmus, buphthalmus, retinal lesions, talipes equinovarus, syndactyly, hypospadias, muscular weakness, cerebral diplegia, cleft palate, and dental anomalies.

By far the most common congenital cardiac anomaly secondary to maternal rubella is patent ductus arteriosus, occurring in 58 per cent of cases. It most often occurs as a solitary lesion but sometimes occurs in combination with other congenital cardiac defects, particularly ventricular septal defect, atrial septal defect, pulmonary valvular stenosis and pulmonary branch stenosis. Estimates of the percentage of congenital cardiac lesions secondary to rubella range from 1.2 to 10 per cent, but the incidence of patent ductus secondary to maternal rubella appears to be much greater than this with estimates ranging to as high as 25 per cent of the total.

In our patient we are confronted with the differential diagnosis of congestive heart failure in the first year of life. We will consider both extracardiac disease and cardiopathies which may be either infectious or congenital in origin, and will limit the discussion to those conditions which are known to cause a murmur similar to that outlined in the protocol.

The differential diagnosis of a continuous murmur includes the following entities: atrial septal defect, ventricular septal defect, venous hum, severe anemia, hemi-truncus arteriosus, primary pulmonary hypertension, a high ventricular septal defect with aortic insufficiency, the rupture of an aneurysm of the sinus of Valsalva, truncus arteriosus, aortico-pulmonary septal defect and patent ductus arteriosus. All but the last four of these are ruled out on the basis of inconsistent catheterization data.

Ruptured aneurysm of the sinus of Valsalva, creating an aortico-pulmonary communication, is a possibility but is excluded on the basis of extreme rarity and the findings of the cineangiogram.

Truncus arteriosus may be ruled out by the absence of cyanosis after exertion and because of the previous healthy condition of the child. Aortico-pulmonary septal defect is likewise ruled out on the basis of extreme rarity. The remaining entity is patent ductus arteriosus, already stated to be the most frequent teratologic sequellum of maternal rubella.

The etiology of this disease is known to be related in some fashion to that of other cardiac defects subsequent to rubella infections, but to the best of our knowledge the exact mechanism is not known. A current theory involves a basic defect in the muscular wall of the embryonic ductus, postulated but not proven. When a patent ductus becomes apparent before six months of life, the murmur most often resembles that which is outlined in the protocol. In later life a true continuous murmur is more often present. Right and left ventricular heaves are common. The absence of a thrill is not unusual. The catheterization findings are quite compatible with this diagnosis with the exception of a 64 per cent aortic oxygen saturation, and we feel that we have an explanation for this value.

Endocardial fibroelastosis is regarded as the most common cause of congestive heart failure and death in children between the ages of two months and one year. This is a condition of unknown etiology, the characteristic lesion being a pearly white covering over the endocardial surface of the left atrium and ventricle. The salient clinical features of this disease are dyspnea without cyanosis, gallop rhythm, and death within the first year of life. These children usually do well until the acute onset of congestive failure, after which they succumb rapidly often as a result of associated pulmonary infection. About half of the cases of endocardial fibroelastosis are associated with other congenital heart lesions, the three most common being patent ductus arteriosus, coarctation of the aorta, and aortic atresia. This diagnosis is an attractive one and cannot be excluded, particularly in the presence of a compatible electrocardiogram.

Pneumonia is one of the most common causes of death in infants during the first year of life, causing 10 per cent of all deaths of infants up to four months of age. It is a contributing factor in the demise of an additional 25 per cent.

Pneumococcal pneumonia must be considered in any child with respiratory distress and fever. This occurs with abrupt onset, sustained fever, and crisis within five to nine days. We rule this out by history, laboratory, and x-ray findings.

Streptococcal pneumonias might present a picture

similar to this, but this entity should have responded well to the therapy, and should have given a positive culture. Staphylococcal pneumonia must be considered in any child under six months of age. Mortality in this age group is approximately 12 per cent. This disease causes multiple abscesses, fistulas, empyema and manifests rapid x-ray changes. We rule this out because of lack of corroborative x-ray findings. Hemophilus influenza and Friedlander's bacillus pneumonitis we rule out because of their rarity.

Tuberculosis and histoplasmosis may present a picture similar to that of our patient. We cannot altogether rule these entities out, but feel there is a better diagnosis.

Viral pneumonias are said to be the most common form of pneumonitis in infants under one year of age. Measles, mumps, adenovirus, influenza, and Coxsackie B are the most frequent etiologic agents. The white blood count in these cases is usually not significantly altered. We cannot rule these out, but again we believe there is a better diagnosis.

Fulminating interstitial pneumonia in infancy is an intriguing diagnosis for our patient. It is frequently associated with sudden death in infants. The inflammation is interstitial, generalized, and usually present in both lung fields. Due to its rarity and associated lymphadenopathy, we bypass this diagnosis for our patient.

The giant cell pneumonia of Hicht is a rare subacute or chronic interstitial pneumonia occurring in infants. Clinically, it cannot be distinguished from many other pneumonitides. It occurs most frequently in patients whose resistance is impaired by other chronic infections, and is thought to be closely related to the measles virus and canine distemper virus. Thrush pneumonia is a possibility but is seldom seen in patients over eight weeks of age. X-ray findings are usually minimal.

Aspiration pneumonia and kerosene pneumonia must be considered, and are ruled out because we lack a compatible history. Lipoid pneumonia is a chronic interstitial inflammation resulting from aspiration of lipoid material. It occurs primarily in debilitated infants, and is frequently complicated by superimposition of bronchopneumonia. We cannot rule out this disease but will pass it by for a more likely diagnosis.

Mucoviscidosis must be considered in any infant with respiratory distress, but the patient's growth and development history make this diagnosis less likely.

Coliform organisms are a frequent cause of pneumonia in infants, usually during the first three weeks of life. E. coli pneumonia is compatible with the findings in our patient. The culture makes this diagnosis very attractive. In addition, it is known that E. coli pneumonia responds slowly to some antibiotics, including kanamycin. Since our patient was four

months of age and had not been severely debilitated, we reluctantly pass by this diagnosis.

Pneumocystis carinii pneumonia is a disease of early childhood which has, in recent years, gained a world wide reputation. It is well known in Europe, but relatively few cases have been diagnosed in this country. Characteristically a disease of the extremes of life, it is most frequently found in infants, particularly those debilitated by other systemic diseases. The incubation period is 20 to 60 days, and it is most frequently contracted in the sixth to eighth week of life, when gamma globulins are lowest.

The clinical course, which begins at age one to four months, is heralded by anorexia, occasional vomiting, rhinitis, and arrest of weight gain. This picture is supplanted by or followed by a gradually increasing tachypnea which may increase to a maximum of 80-120 per minute. The dyspnea increases, and in a few days he becomes pale or cyanotic. A shock-like state may ensue. Severe oxygen starvation is usually apparent.

Respiration is abdominal in type with sternal and flank retraction. Findings upon auscultation are minimal. Breath sounds are diminished. Infrequently rales are heard. The heart sounds are normal. The temperature may be elevated or normal and the x-ray picture is one of a diffuse infiltrate of both lungs. Roentgenologic manifestation may be quite marked at an early stage, even before severe clinical symptoms are manifest. Laboratory data include an increase in the white blood count, usually in the neighborhood of 20,000. Exceptionally high calcium levels have been noted due to renal complications. Albumin, red and white cells, and granular casts are sometimes found in the urine.

The organism, *Pneumocystis carinii*, is sometimes found in association with cytomegalic inclusion disease.

Death occurs in 20 to 50 per cent of affected infants, and it is frequently due to a superimposed bacterial infection.

Treatment, though largely symptomatic and entirely empirical, must be intensive. Oxygen is necessary, usually in concentration of 60 to 70 per cent with mist. Caffeine or other respiratory stimulants may be used. The patient should be handled and removed from oxygen as little as possible. Though no agent is specific for this organism, the best results are obtained from the use of tetracyclines and chloramphenicol. Estrogen therapy has been thought to be useful by some authors. In cases which survive, improvement usually begins within one week. Complete recovery is the rule in those who do not die.

In summary, we believe that this infant had a pneumonitis due to *Pneumocystis carinii*, though we cannot rule out several other of the pneumonitides. He was

the product of a maternal rubella infection, and for this reason had a patent ductus arteriosus. It is probable that the two entities involved were interrelated insofar as pathogenesis is concerned. In conclusion, we are obliged to make the diagnosis of *Pneumocystis carinii* pneumonia because we have not had one solitary substantial piece of evidence that militates against this diagnosis—to this point.

Dr. Delp: Do I assume that you all agree with the diagnosis in all details? Since we do not have very much time left, I want you to take a stand as to whether or not the series of events, all of which seem to be quite lethal, were primarily the result of pulmonary disease or cardiovascular disease, Mr. Strand?

Mr. Strand: Pulmonary.

Mr. Tillotson: Pulmonary disease.

Mr. Walters: Pulmonary disease.

Mr. Weeks: I agree.

Dr. Delp: Do you think that the cardiovascular disease was incidental, Mr. Strand?

Mr. Strand: Yes, I think that the cardiovascular disease really was minimal.

Mr. Tillotson: I think it contributed to the beginning and the course of the disease, but it was of secondary significance as a direct cause of death.

Mr. Walters: It was not incidental. It was instrumental.

Mr. Weeks: I would say that it was incidental and not only that, it was probably quite minimal and was only significant because of the pulmonary infection.

Dr. Delp: Now, Mr. Walters, you may not have a subsequent opportunity to speak, so would you care to let the pediatricians in on your secret about this disease entity about which you were inquiring?

Mr. Walters: This is an infrequent cause of aspiration pneumonia in infants. It's a familial dysautonomia which is characterized by skin rash and failure to thrive.

Dr. Delp: Mr. Strand, do you think the digitalis had any influence on the outcome of this case?

Mr. Strand: I think it could have.

Dr. Delp: Yes or no?

Mr. Strand: Yes.

Mr. Tillotson: Yes.

Mr. Walters: Yes.

Mr. Weeks: No.

Dr. Delp: There is just one final question. Wolff-Parkinson-White syndrome, would you say that's what this child had?

Messrs. Strand, Tillotson, Walters, and Weeks: No.

Dr. Delp: Four "no's." Dr. Diehl? Comments about this case?

Dr. Diehl: The only comment that I would make is that I do feel that the vascular disease was hemo-

odynamically significant. We were trying to get this baby over his pneumonia; I agree this baby had pneumonia. If the baby had *Pneumocystis carinii*, I would like all of these students to become members of our staff.

Dr. Herbert C. Miller (pediatrician): I think that if this baby had *Pneumocystis carinii* it would be about as important as the opacity in its right eye. This child had bronchopneumonia, but I do not think that *Pneumocystis carinii* would be the prime etiological agent. I would pick something far more virulent. This baby was doing very well until two days before he came to the hospital, and this is not what one usually sees with *Pneumocystis carinii*. This is a description of a child coming down with acute bronchopneumonia of viral origin.

Pathology Report

Dr. Jacob K. Frenkel (pathologist): This autopsy was done by Dr. Antonio Racela, and this makes it a family affair. The history of maternal rubella was given on May 30 and the estimated date of conception was May 4, so this could represent a rather early interference with fetal development. We did, indeed, find a cataract unilaterally, and a patent ductus arteriosus which was 4 mm. in diameter. However, the reasons for the patient's cardiac difficulties were not as evident. Dr. Racela made numerous sections along the conduction bundles, examining the sinoauricular and atrioventricular nodes, and there were no significant abnormal findings visible to the pathologist's eye at least. There were a few minor areas of fibrosis but really none that could be called significant.

We saw this child's main problem in his x-rays. At autopsy, too, the lungs had the typical appearance of pneumocystis pneumonia moderately expanded, firm and pale, without purulent material. It was very hard to express any exudate and indeed the viscosity of the colonies of pneumocystis was very great. Microscopically there was diffuse interstitial as well as alveolar pneumonia (*Figure 5*). I would say that the number of pneumocystis present (most of the alveoli were occluded with them) and the negativity of bacterial cultures indicate the important role these organisms must have played in this patient's death. Unfortunately no viral isolation was attempted. Special stains showed the cysts of pneumocystis to be quite numerous and to accompany the proliferative forms that do not stain with the silver stain (*Figure 6*).

It was mentioned that this disease generally occurs around the fourth or fifth month of infancy. At birth the gamma globulin levels are usually around a gram since they are transferred quantitatively by the mother. After that they drop to a low level between the second and fourth month at which time they are reduced to a third or even a tenth of the starting value. Then the

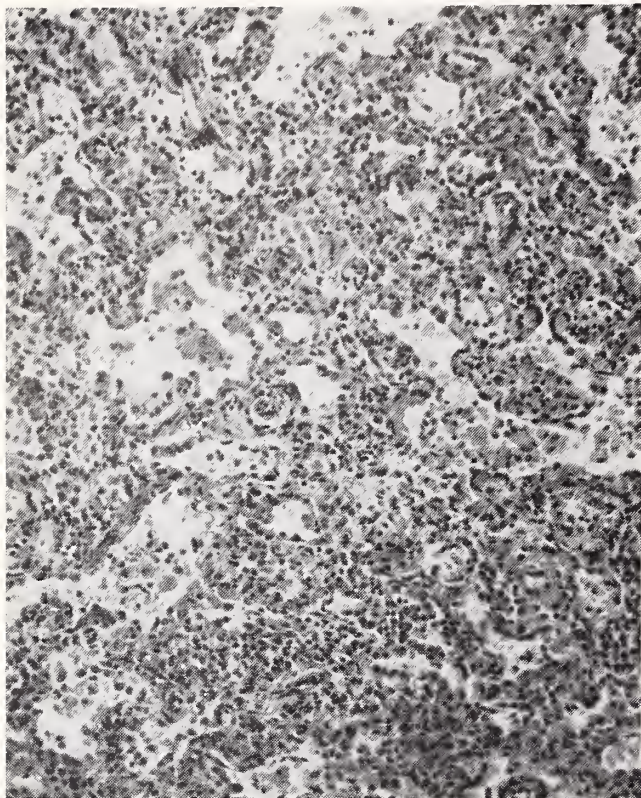


Figure 5. In the interstitial and alveolar mononuclear exudate are homogeneous gray masses of *Pneumocystis*. H&E, 130X.

baby begins to develop its own gamma globulin which reach near-adult levels at approximately one year of age.

Pneumocystis disease used to be called plasma cell pneumonia, but our patient showed macrophages predominantly, with only a few lymphocytes and plasma cells.

The European cases of plasma cell pneumonia were found in institutional outbreaks, usually in prematures that stayed in hospitals or nursing homes for long periods of time, who were relatively malnourished, and who had a hard time making a go of life (Sheldon). Such patients may exhibit a difficulty in producing gamma globulin; at least the plasma cells try very hard. In our case, and in most cases that are currently observed in the United States, plasma cells are absent or very scarce (Huneycutt, *et al.*). Many cases have been found in male children with congenital hypogammaglobulinemia where plasma cells are absent. We do not know the amount of gamma globulins and how active they were in this patient. *Pneumocystosis* also occurs in patients with leukemia or lymphoma, and we presented an adult at a clinicopathological conference about three years ago—a patient with reticular cell sarcoma treated by x-ray, cortisone and nitrogen mustard.

To summarize the conditions under which infec-

tions with *pneumocystis* occur, I think children are usually affected subclinically early in life. Occasionally it is caught as an incidental finding at autopsy. When it is clinically present it is either in prematures, with plasma cell pneumonia, or in agammaglobulinemic males without plasma cells or accompanying leukemia. The last group consists of patients in which no reason is found for the occurrence of the infection. I think this patient falls in this group. He may have had some defect in his antibody or immune mechanisms.

In adults, *pneumocystosis* should be considered a relapse of a chronic latent infection, for example, in a patient with either leukemia or lymphoma, treated with corticosteroids, x-ray, alkylating agents, and cytotoxic agents. It is not uncommonly seen during "immunosuppressive" treatment after renal transplantation.

The life cycle consists of free organisms in a gelatinous matrix and the cyst form dividing into eight small bodies. These are probably the transmissible forms. This infection is hard to diagnose and some of these problems must be investigated in animals. As

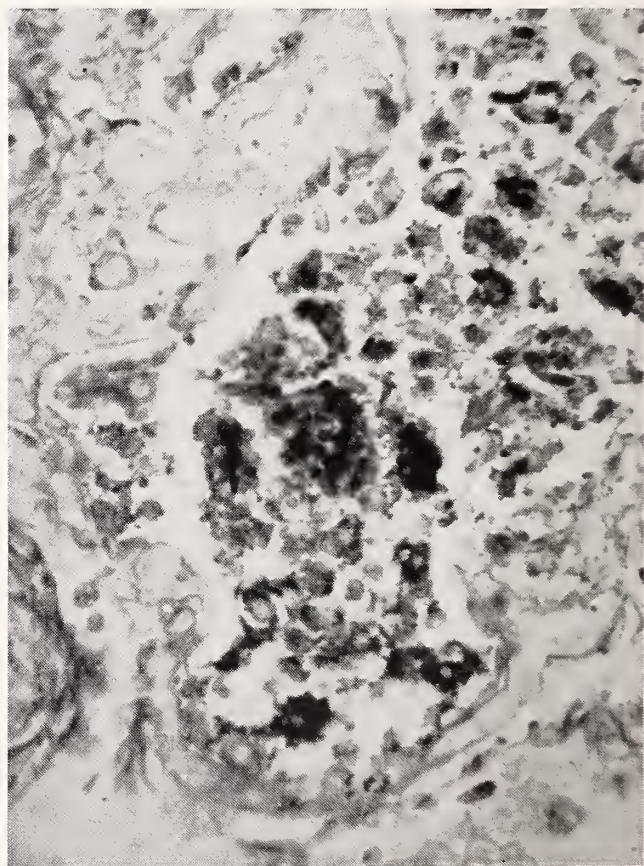


Figure 6. The cystic forms of *Pneumocystis* stain black with methenamine silver (center). They resemble small fungi but are really protozoa. The pale and granular material represents unencysted organisms; a few macrophages are also present, some of which contain dispersed pigment. Grocott stain, 500X.

rats carry a subclinical infection, Dr. James Good (now at Fort Scott, Kansas) became interested in the chemotherapy of pneumocystosis. He treated rats with high doses of cortisone and produced the disease. The alveoli of the rats became distended with organisms, and the animals succumbed to asphyxia. W. C. Marshall, *et al.*, reported pentamidine to be effective. However, the organism is resistant to amphotericin-B, arsenicals and antibiotics. Dr. Good found sulfadiazine, and pyrimethamine (Daraprim®) singly, to be slightly effective. The two drugs together are highly effective. I have reviewed all the Papanicolaou smears that were done of our patients with pneumocystosis, but did not find organisms with certainty in any of them. Diagnosis made before death in humans was done either by lung biopsy or from hypopharyngeal material that was aspirated, sectioned and stained, by a special technique of Le Tan-Vinh's. He passed a tube down the trachea and aspirated from there. Finally, the problem of viscosity still puzzles me. It is very hard to express material from the alveoli. This makes difficult the diagnosis from sputum. The enzymes alpha-amylase and acetyl cystein (Mucomyst®) and chymotrypsin seem best to solubilize the colonies of organisms. It may be possible to have the patient

inhale the nebulized enzymes and have a better chance of recovering the organism.

Pathologic Diagnosis

Acute and chronic interstitial pneumonitis due to *Pneumocystis carinii*.

Patent ductus arteriosus.

Biventricular cardiac hypertrophy (weight 40 gm., normal 27 gm.).

Chronic passive congestion of lungs, liver and brain.

Congenital cataract of right eye.

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Simeon B. Bell

(Continued from page 190)

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The President's Message

DEAR DOCTOR:

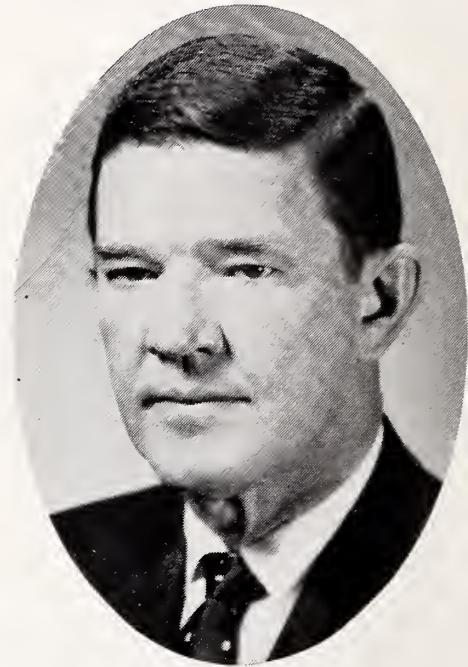
As this one small chapter in the history of the Kansas Medical Society comes to a close I find it difficult to express myself adequately on this small page. Measured in terms of the friendship of all of the physicians of Kansas and the loyal support of the officers of this Society it has been a most rewarding year for me. If I was not aware before that Kansas is the best place in the world to practice Medicine, I am now.

I need not remind you that tasks are left unfinished and that the activities of K.M.S. are a continuous story with success depending on the efforts of all.

Sincerely,

George Burkett, Jr., M.D.

President





Editorial COMMENT



(The following editorial was prepared by the American Medical Association, Department of Investigation.)

"Physicians, as conservators of the public health, are bound to bear emphatic testimony against quackery in all its forms."

Is this a quote from proceedings of the American Medical Association's Clinical Convention in Philadelphia in December?

The meeting was in Philadelphia, but the year was 1847!

So you see, from its very inception 118 years ago, the American Medical Association has been battling quackery and it is dedicated to a continuation of this warfare against wasting the nation's health and its health care dollar . . . of fighting fraud at the bedside of ill and desperate people.

For, as long as there are human beings, there will be human nature . . . and quacks—pretenders to ability they don't possess—to take advantage of the fact.

The health quack is not so easy to spot these days. The stovepipe hat and the pitchman's hawking have gone. In their place are their space-age counterparts, the suave, apparently-sophisticated super salesmen with the Madison Avenue manners.

These merchants of menace, more insidious and unscrupulous than ever, have many new products, worthless diet fads, worthless food supplements, worthless cosmetic devices and treatments, worthless "cures" for everything—even into the area of brain-damaged children and other mental illness.

They bilk the undiscerning—the uninformed, the desperate, the unsuspecting of all ages—of millions of dollars a year. The estimates of the costs of med-

ical quackery are at best calculated guesses, but they have gone as high as a billion dollars a year. And one authority in the field of quack-fighting has stated that "medical quackery each year costs more lives than all crimes in the United States."

It is this cost of life—and health—that has placed America's physicians in the front lines of the war on quacks. It is the insidious side effect of quackery with which medicine concerns itself—the delay in proper medical care that may cost life itself.

It is for this reason, too, that the medical profession is dedicated to education of the people about cultism—chiropractic and the other health sects that turn their backs on scientific medicine.

The House of Delegates of the American Medical Association said in 1933:

"Either the theories and practices of scientific medicine are right and those of the cultists are wrong, or the theories and practices of the cultists are right and those of scientific medicine are wrong."

And in 1961, it said:

"There can never be a majority party and a minority party in any science . . ."

After the quack or the cultist has extracted his pound of flesh—after the damage is done and after the sick may have become the dying because of the delay in proper care—scientific medicine usually is called upon to pick up the pieces.

Medicine has tried and will continue to try to do that job, too, but how much easier the job would have been—how many lives would have been saved—if . . .

WELCOME TO WICHITA

Welcome to Wichita. The Medical Society of Sedgwick County is proud and honored to invite each Kansas physician to attend the Kansas Medical Society's Annual Convention to be held in Wichita, May 2, 3, 4, 5, 1966. Headquarters will be the Hotel Lassen.

An excellent scientific program, as well as recreation, has been planned by the local committees. The theme of the scientific program is "Gastroenterological Diseases." Illustrious speakers from out of state, as well as from our own University of Kansas medical faculty, have been secured. A special feature of this year's Convention will be three Seminars to be conducted at the three local hospitals. Bus transportation to and from the hospitals will be provided.

Special mailings regarding the Convention will be forthcoming, and each physician is urged to review these programs and make his reservations early to avoid last-minute uncertainties.

If you have not made arrangements for a space for your scientific exhibit, please do so, as there are still open spaces left.

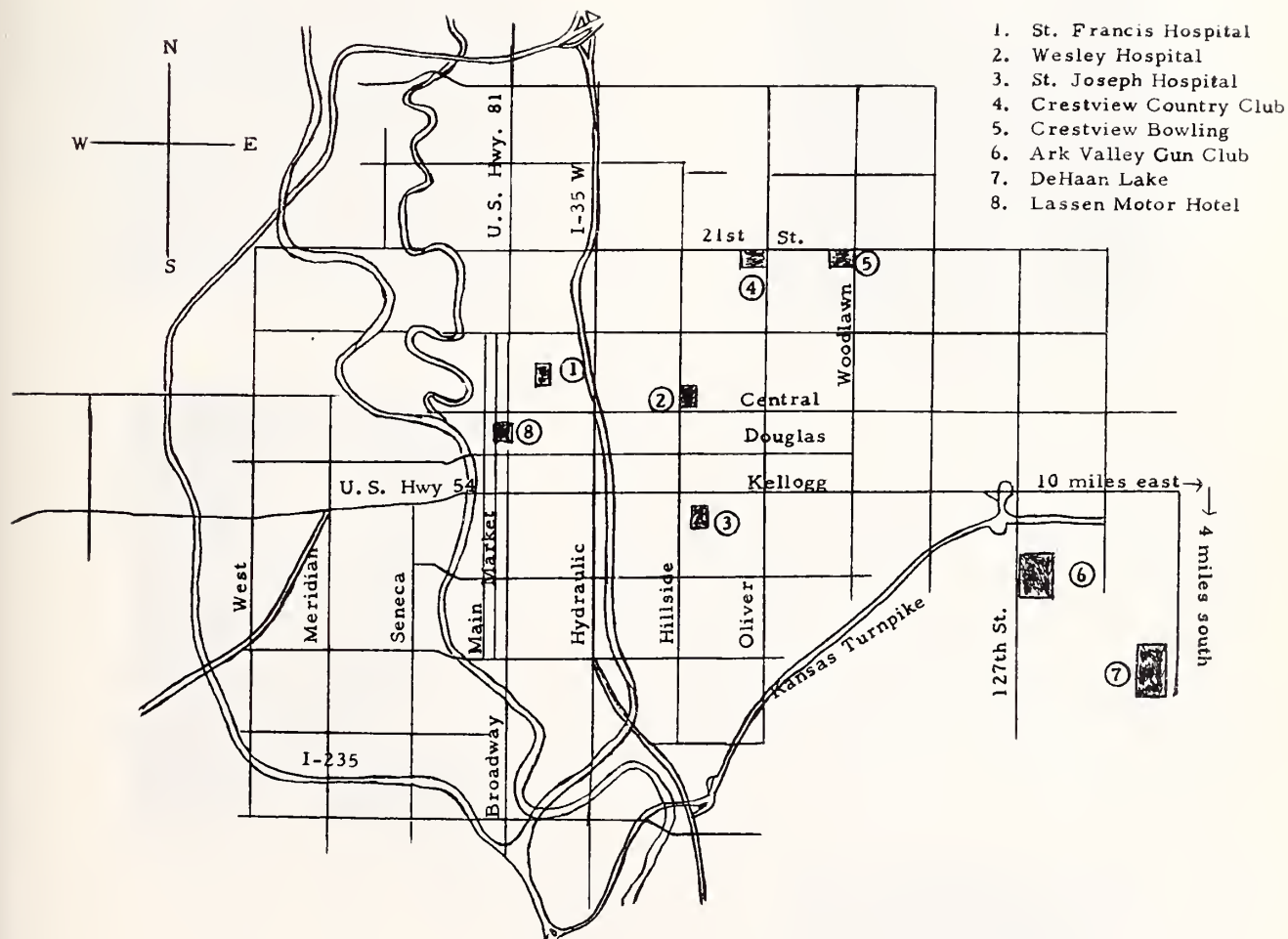
We shall be pleased and honored to be your hosts, and we are looking forward to seeing you at the May meeting.

Very sincerely,

A. E. Hiebert, M.D.

President, Medical Society of Sedgwick County

Wichita



107th Annual Session, Kansas Medical Society

Monday, May 2, through Thursday, May 5, 1966

SCIENTIFIC SPEAKERS



MARTIN A. ADSON, M.D.
Rochester, Minnesota

Graduate, Yale Medical School, 1949. Certified by the American Board of Pediatrics, 1951. A Buswell Fellow and Research Professor of Pediatrics at the University of Buffalo, 1956-1965, and Attending Physician and Director of Research, Children's Hospital, Buffalo, 1951-1965. He is now Professor of Pediatrics, University of Florida College of Medicine, Gainesville, Florida.



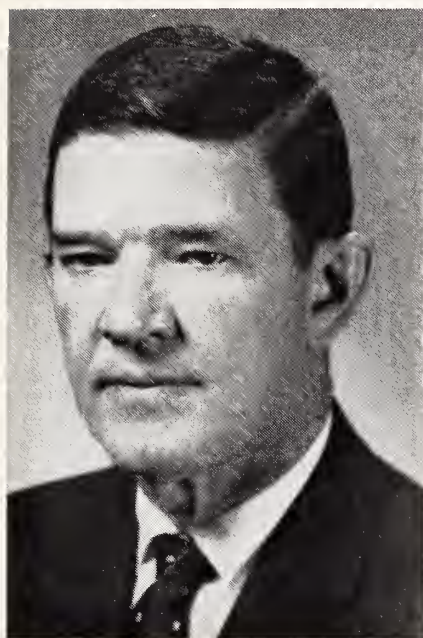
CHARLES U. LOWE, M.D.
Gainesville, Florida



ERL DORDAL, M.D.
Chicago, Illinois

Graduate, University of Chicago Medical School, 1956. Surgical resident, Gunderson Clinic, LaCrosse, Wisconsin, 1957-1958. Resident in Internal Medicine, University of Chicago Medical School, 1958-1961. Dr. Dordal has served as Attending Physician in the Section of Gastroenterology since 1961, and in 1964 became Assistant Professor of Medicine at the University of Chicago Medical School, Chicago, Illinois.

President and President-Elect



GEORGE BURKET, JR., M.D., *President*
Kingman, Kansas



JAMES MCCLURE, M.D., *President-Elect*
Topeka, Kansas

Visit the Exhibits!

The Commercial and Scientific Exhibits are conveniently located on the second floor of the Hotel Lassen. Time, money and effort have been spent in preparing these displays. Show your appreciation by visiting all of them.

Commercial Exhibits

The Commercial Exhibits will be located in the Walnut Room, the Northwest Ballroom and the Southwest Ballroom on the second floor. Exhibits will be open on Tuesday, May 3, at 8:30 a.m., and will be dismantled at noon on Wednesday, May 4.

ABBOTT LABORATORIES
North Chicago, Illinois

BRISTOL LABORATORIES
Syracuse, New York

BURROUGHS WELLCOME & COMPANY
Tuckahoe, New York

CIBA PHARMACEUTICAL COMPANY
Summit, New Jersey

THE COCA-COLA COMPANY
Atlanta, Georgia

DUFFENS OPTICAL COMPANY
Topeka, Kansas

GREB X-RAY COMPANY, INC.
Kansas City, Missouri

KANSAS BLUE SHIELD
Topeka, Kansas

THE MEDICAL PROTECTIVE COMPANY
Fort Wayne, Indiana

MERCK SHARP & DOHME
West Point, Pennsylvania

MID-WEST SURGICAL SUPPLY COMPANY, INC.
Wichita, Kansas

MIDWAY FINANCE, INC.
Concordia, Kansas

MUNNS MEDICAL SUPPLY COMPANY, INC.
Topeka, Kansas

ORTHO PHARMACEUTICAL CORPORATION
Raritan, New Jersey

PEPSI-COLA BOTTLING COMPANY
Wichita, Kansas

G. D. SEARLE & COMPANY
Chicago, Illinois

SMITH, MILLER & PATCH, INC.
New York, New York

SOUND RECORDING COMPANY
Topeka, Kansas

E. R. SQUIBB & SONS
New York, New York

TEL-TEK ELECTRONICS, INC.
Dallas, Texas

3 M BUSINESS PRODUCTS SALES, INC.
Wichita, Kansas

WASHINGTON NATIONAL INSURANCE COMPANY
Evanston, Illinois

The Kansas Medical Society acknowledges with thanks the convention program grants received from the companies listed below:

ELI LILLY & COMPANY
Indianapolis, Indiana

SMITH KLINE & FRENCH LABORATORIES
Philadelphia, Pennsylvania

Scientific Exhibits

The Scientific Exhibits will be located in the Assembly Room on the second floor. Exhibits will be open on Tuesday, May 3, at 8:30 a.m., and dismantled at noon on Wednesday, May 4.

CHROMOSOMAL ABNORMALITIES WITH MULTIPLE CONGENITAL ANOMALIES

Russel A. Nelson, M.D., Leo P. Cawley, M.D., and Isadore Torres, M.T. (ASCP), Wesley Medical Center, Wichita

SERVICE PROGRAM

American Cancer Society, Kansas Chapter, Topeka

TUMORS OF NEUROGENIC ORIGIN IN CHILDHOOD

Edward J. Fitzgerald, M.D., and Paul M. Murphy, M.D., St. Joseph Hospital, Wichita

TESTS IN ELECTROCARDIOGRAPHY AND AUSCULTATION

Kansas Heart Association, Topeka

TREATMENT OF SCOLIOSIS

Henry O. Marsh, M.D., Department of Orthopedics, St. Francis Hospital, Wichita

POSTGRADUATE MEDICAL EDUCATION

Jesse D. Rising, M.D., Chairman, Department of Postgraduate Medical Education, University of Kansas Medical Center, Kansas City

KAMPAC

Kansas Medical Political Action Committee

Items of Interest

- **House of Delegates**
Colonial Room—Monday and Thursday
- **General Sessions**
South Ballroom—Tuesday
- **Luncheon**
Colonial Room—Tuesday
- **Hospital Seminars**
St. Francis, St. Joseph Hospitals, Wesley Medical Center—Wednesday
- **Specialty Group Meetings—Wednesday Afternoon**
American College of Chest Physicians, Kansas Chapter
Eye, Ear, Nose and Throat Section
Kansas Association of Coroners
Kansas Psychiatric Society
Kansas Radiological Society
Kansas Society of Anesthesiology

SPECIAL EVENTS

MONDAY

- **Sports Day**
Golfing—Crestview Country Club
Bowling—Crestview Bowling Lanes
Shooting—Ark Valley Gun Club
Fishing—DeHaan Lake
Cocktail Hour—Sports Banquet—Crestview Country Club

TUESDAY

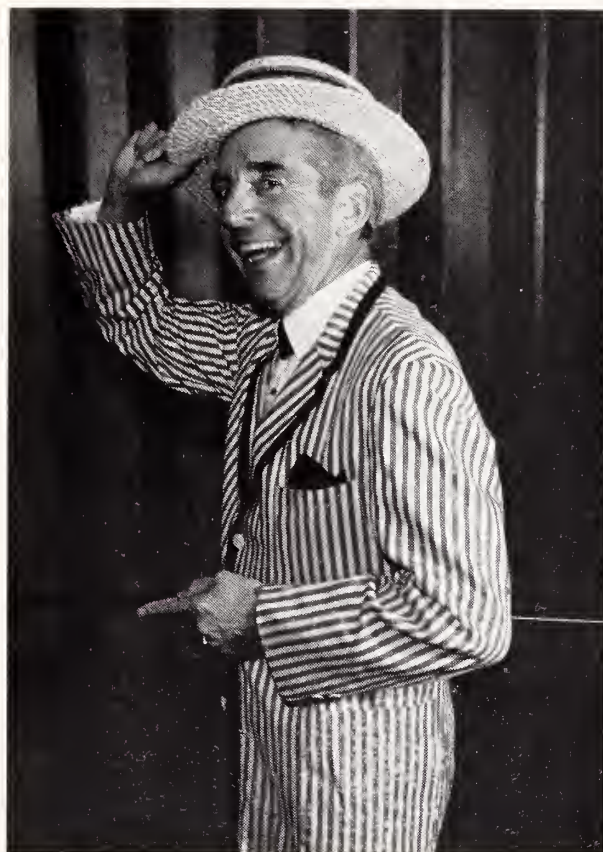
- **Reunion—Class of 1936**
University of Kansas School of Medicine
Social Hour—Dinner

WEDNESDAY

- **Reception—K.U. Medical Alumni Association**
Colonial Room
- **Annual K.M.S. Banquet—Entertainment—Dancing**
Main Ballroom

(see program for time schedule)

Al Fike—The “Minstrel Man”



“I like Fike” is the phrase from Canada to Florida, when the man in the candy-striped blazer sits down to the piano to play and sing.

A former school teacher turned pianist-singer-comic, Al Fike is a skilled, modern minstrel man whose magnetic personality draws the audience into the show. Playing and singing the old favorites—“Five Foot Two,” “Ain’t She Sweet,” and many others—he soon has the crowd tapping their feet, clapping their hands and swaying to the rhythm of the music. As Herb Kelly of the *Miami News* says, “A thin fellow with a shock of wavy gray hair is a new face . . . and the corn he delivers is sweet with delicious country butter. . . . He’s a sort of one-man Mitch Miller Singalong and he grows on you. . . .” Dick Hoekstra, writer for the *Miami Herald* states, “Al Fike will get to you. . . . Here’s one of today’s performers who doesn’t recognize a cold audience. He works in high degrees of warmth and the more you see and hear him, the more you’ll warm up. . . . He can sell a tune sitting at the piano better than most singers can standing at a microphone with two echo chambers going for them.”

Supporting Fike on the drums and piano are Tom MacCluskey and Larry Wegner. Tom MacCluskey, who plays the piano and vibraharp as well as the drums, teaches music theory at the University of Colorado and is music editor for the *Rocky Mountain News* in Denver. Larry Wegner, from Yuma, Colorado, attends the University of Colorado, and plays the organ and piano. He is accompanying Fike on his Florida tour this year.

DON’T MISS AN EVENING WITH AL FIKE—ATTEND THE BANQUET,
MAY 4, 7:00 P.M., IN THE MAIN BALLROOM—JOIN THE FUN!

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Hosts for Meeting

Wichita Physicians Arranging 1966 Session

GENERAL CHAIRMAN—CHARLES M. WHITE, M.D.

CO-CHAIRMAN—VERYL D. SCHWARTZ, M.D.

PROGRAM

Lew W. Purinton, M.D.

SCIENTIFIC EXHIBITS

John J. Schlucter, M.D.

SPORTS EVENTS

George H. Keene, M.D.

Monday, May 2, 1966

Hotel Lassen

HOUSE OF DELEGATES

Thomas F. Taylor, M.D., Phillipsburg, Speaker
J. Walker Butin, M.D., Wichita, Vice Speaker

7:00 Registration
Lobby, 2nd Floor

7:30 Breakfast and Meeting
Colonial Room

KANSAS MEDICAL GOLF AND SKEET
SHOOTING ASSOCIATION

Thomas F. Taylor, M.D., Phillipsburg, President
George H. Keene, M.D., Wichita, Chairman
Greens and bowling lanes will be available all day.
Golf—Crestview Country Club
Bowling—Crestview Bowling Lanes
Shooting—Ark Valley Gun Club
Fishing—DeHaan Lake

6:30 Cocktail Hour—Sports Banquet—Crestview
Country Club

TELEPHONE NUMBER 316 FOrrest 3-7751

Second Floor

MORNING

7:30 PAST PRESIDENTS' BREAKFAST

8:00 REGISTRATION—TICKETS—INFORMATION
LOBBY, 2ND FLOOR

MOTION PICTURE

8:30 CATHETER TECHNIQUE FOR ARTERIAL EMBOLECTOMY

9:35 WELCOME TO WICHITA

*A. E. Hiebert, M.D., President
Medical Society of Sedgwick County*

RESPONSE

*George E. Burket, Jr., M.D., President
Kansas Medical Society*

GASTROENTEROLOGY

Robert Manning, M.D., Moderator, University of Kansas School of Medicine

FIRST GENERAL SESSION

9:45 DIFFICULT PROBLEMS IN GASTROENTERO-
LOGIC SURGERY

*Martin A. Adson, M.D.
Rochester, Minnesota*

10:15 JAUNDICE IN THE PEDIATRIC PATIENT

*Charles U. Lowe, M.D.
Gainesville, Florida*

10:45 INTERMISSION TO VIEW COMMERCIAL AND
SCIENTIFIC EXHIBITS

SECOND GENERAL SESSION

11:15 LIVER BIOPSY IN INFLAMMATORY BOWEL
DISEASE

*Erl Dordal, M.D.
Chicago, Illinois*

NOON

12:00 LUNCHEON—COLONIAL ROOM

GUEST SPEAKERS WILL BE PRESENT FOR PANEL DISCUSSION

TELEPHONE NUMBER 316 FORrest 3-7751

May 3, 1966

Hotel Lassen

AFTERNOON

THIRD GENERAL SESSION

Stanley R. Friesen, M.D., Moderator
University of Kansas School of Medicine

1:30 DIAGNOSIS AND TREATMENT OF CYSTIC FIBROSIS OF THE PANCREAS

Charles U. Lowe, M.D.
Gainesville, Florida

2:00 ACHALASIA AND OTHER SWALLOWING PROBLEMS

Erl Dordal, M.D., Chicago, Illinois

2:30 INTERMISSION TO VIEW COMMERCIAL AND SCIENTIFIC EXHIBITS

FOURTH GENERAL SESSION

3:00 GASTROENTEROLOGIC SURGERY: QUESTIONS AND ANSWERS

Martin A. Adson, M.D.
Rochester, Minnesota

3:30 QUESTIONS FROM THE FLOOR

MOTION PICTURE

3:45 ANORECTAL SIGMOIDOSCOPIC EXAMINATIONS

Reference Committees

3:45 REFERENCE COMMITTEE NO. 1—AERONAUTICS ROOM
REFERENCE COMMITTEE NO. 2— FRONTIER ROOM

EVENING

REUNION—CLASS OF 1936
University of Kansas School of Medicine

6:00 SOCIAL HOUR

7:00 DINNER

TELEPHONE NUMBER 316 FOrrest 3-7751

Hospital Seminars

MORNING

8:00 REGISTRATION—TICKETS—INFORMATION
LOBBY, 2ND FLOOR, HOTEL LASSEN

(Busses to the hospitals will leave from the Hotel Lassen at 9:00 a.m. sharp.)

SURGICAL SEMINAR

St. Francis Hospital, 929 North St. Francis

9:30 CASE PRESENTATION: PERFORATED GASTRIC
ULCER AND ITS COMPLICATIONS

9:45 DISCUSSION

10:30 COFFEE BREAK

10:45 PERFORATED GASTRIC ULCER AND ITS COM-
PLICATIONS

Martin A. Adson, M.D.
Rochester, Minnesota

11:15 PANEL DISCUSSION
JAMES H. HOLT, M.D., Wichita, Moderator
MARTIN A. ADSON, M.D., Rochester
ROBERT MANNING, M.D., Kansas City

MEDICAL SEMINAR

Wesley Medical Center, 550 North Hillside

9:30 CASE PRESENTATION: MALABSORPTION SYN-
DROME

9:45 DISCUSSION

10:30 COFFEE BREAK

10:45 MALABSORPTION SYNDROME
Erl Dordal, M.D., Chicago, Illinois

11:15 PANEL DISCUSSION
J. WALKER BUTIN, M.D., Wichita,
Moderator
ERL DORDAL, M.D., Chicago
STANLEY R. FRIESEN, M.D., Kansas City

PEDIATRIC SEMINAR

St. Joseph Hospital, 3400 Grand Avenue

9:30 CASE PRESENTATION: ULCERATIVE COLITIS

9:45 DISCUSSION

10:30 COFFEE BREAK

10:45 NEWER CONCEPTS OF ETIOLOGY AND MAN-
AGEMENT OF ULCERATIVE COLITIS IN
CHILDREN

Charles U. Lowe, M.D.
Gainesville, Florida

11:15 PANEL DISCUSSION

H. J. MENEHAN, M.D., Wichita, Moderator
CHARLES U. LOWE, M.D., Gainesville
THOMAS M. HOLDER, M.D., Kansas City

TELEPHONE NUMBER 316 FOrrest 3-7751

May 4, 1966

Hotel Lassen

AFTERNOON

12:45 KAMPAC—LUNCHEON—BOARD OF DIRECTORS MEETING

The Specialty Societies will have meetings as scheduled on page 217 of the program.

MOTION PICTURES

2:00 CATHETER TECHNIQUE FOR ARTERIAL EMBOLECTOMY

3:00 ANORECTAL SIGMOIDOSCOPIC EXAMINATIONS

EVENING

Annual Banquet—Kansas Medical Society

5:30 RECEPTION—Hosts: K.U. Medical Alumni Association
Colonial Room

7:00 DINNER—Main Ballroom

George E. Burket, Jr., M.D., Kingman, Presiding

INVOCATION

INTRODUCTION OF GUESTS

OATH OF OFFICE TO INCOMING PRESIDENT

AL FIKE—THE “MINSTREL MAN”

10:00 DANCING

TELEPHONE NUMBER 316 FOrrest 3-7751

Thursday, May 5, 1966

Hotel Lassen

MORNING

8:00 REGISTRATION

LOBBY, 2ND FLOOR

9:00 HOUSE OF DELEGATES SECOND MEETING

COLONIAL ROOM

The Council will meet following the adjournment of the House of Delegates.

12:15 LUNCHEON



TELEPHONE NUMBER 316 FOrrest 3-7751

Specialty Society Meetings

Wednesday, May 4, 1966

(All meetings will be held at the Hotel Lassen, unless otherwise indicated)

AMERICAN COLLEGE OF CHEST PHYSICIANS, KANSAS CHAPTER

Wayne L. Fowler, M.D., Concordia, President

OPEN TO ALL PHYSICIANS

12:30 LUNCHEON—PANEL DISCUSSION
MANAGEMENT OF ACUTE PULMONARY IN-
SUFFICIENCY

*Thomas Petty, M.D., Director
Pulmonary Intensive Care Unit
University of Colorado, Denver*

PANELISTS:

*Thomas Petty, M.D., Denver
William E. Ruth, M.D., Kansas City
Ray T. Parmley, M.D., Kansas City*

EYE, EAR, NOSE AND THROAT SECTION

James H. Enns, M.D., Newton, President

12:00 LUNCHEON

12:40 BUSINESS MEETING

1:30 SCIENTIFIC MEETING

EYE: PROSTHETIC FITTING PROBLEMS
Doolin-Shaw Optical Company, Wichita

ENT: PRACTICAL OFFICE APPLICATIONS OF
AUDIOLOGY RESEARCH FINDINGS
*William E. Miller, Ph.D.
Institute of Logopedics, Wichita*

KANSAS ASSOCIATION OF CORONERS

John E. Johnson, M.D., Kansas City, President

12:30 LUNCHEON—BUSINESS MEETING

KANSAS RADIOLOGICAL SOCIETY

Richard F. Conard, Emporia, President

12:30 LUNCHEON—BUSINESS MEETING

TELEPHONE NUMBER 316 FORrest 3-7751

KANSAS SOCIETY OF ANESTHESIOLOGY

Wichita Plaza Building, 17th Floor

Roger H. Robinson, M.D., Wichita, President

12:30 LUNCHEON—BUSINESS MEETING

KANSAS PSYCHIATRIC SOCIETY

R. E. Reinert, M.D., Topeka, President

10:00 CALL TO ORDER

10:15 PRESCRIPTION FOR OUTPATIENT TREATMENT
*Howard Williams, M.D.
Topeka State Hospital*

PRESCRIPTION FOR PSYCHIATRIC DAY TREAT-
MENT

*Ronald Chen, M.D.
Topeka State Hospital*

PRESCRIPTION FOR INPATIENT CARE
*Lawrence Kennedy, M.D.
Topeka State Hospital*

11:15 DISCUSSION AND QUESTIONS

11:45 100 YEARS OF PROGRESS AT OSAWATOMIE
STATE HOSPITAL

*Dr. Lowell Gish
Professor of Education
Baker University, Baldwin*

12:15 LUNCHEON (ON YOUR OWN)

2:00 PSYCHIATRIC PROGRAM IN A SECURITY SET-
TING

*E. A. Larsson, M.D.
Larned State Hospital*

2:45 OVERVIEW OF THE ADAPTIVE BEHAVIOR
PROJECT OF THE AMERICAN ASSOCIA-
TION ON MENTAL DEFICIENCY BEING
CONDUCTED AT PARSONS STATE HOS-
PITAL AND TRAINING CENTER

*Henry Leland, Ph.D.
Kazuo Nihira, Ph.D.
Mr. Max Shellhaas
Miss Linda Horton*

3:45 BUSINESS MEETING

Woman's Auxiliary to the Kansas Medical Society

May 2-5, 1966, Lassen Motor Hotel

*(All activities at the Lassen Motor Hotel,
unless otherwise indicated)*

Monday, May 2

9:00 REGISTRATION—HOSPITALITY ROOM—
6th Floor
GOLF—Rolling Hills Country Club

12:30 PRE-CONVENTION LUNCHEON AND BOARD
MEETING—4th National Bank, Execu-
tive Dining Room

*Mrs. E. Burke Scagnelli
State President, presiding*

7:00 SOCIAL HOUR AND DINNER—Wichita Club
*Mrs. A. J. Wray, President
Sedgwick County Auxiliary, presiding*

Tuesday, May 3

9:00 REGISTRATION—HOSPITALITY ROOM—
6th Floor
PAST PRESIDENTS' BREAKFAST—Suite B
KMS SCIENTIFIC SESSIONS

1:00 LUNCHEON—West Room, Innes
Accessory and Hat Style Show

Wednesday, May 4

8:00 REGISTRATION—HOSPITALITY ROOM—
6th Floor
CONTINENTAL BREAKFAST
(Complimentary)—Room B-8

8:45 GENERAL SESSION—Room A

1:00 LUNCHEON—Rolling Hills Country Club
Honoring Mrs. Earl Wilkinson, Southern
Regional Vice President, Woman's
Auxiliary to the AMA

Mrs. E. Burke Scagnelli, presiding

5:30 RECEPTION—Hosts: K. U. Medical Alumni
Association—Colonial Room

7:00 ANNUAL KANSAS MEDICAL SOCIETY BAN-
QUET—Main Ballroom

Thursday, May 5

9:00 REGISTRATION—HOSPITALITY ROOM—
6th Floor

9:30 POST-CONVENTION BOARD MEETING—
Room A

*Mrs. Lyle Glenn
State President, presiding*

GOLF—Rolling Hills Country Club
(Dining room facilities available)

Kansas Medical Assistants Society

April 30-May 2, 1966, Lassen Motor Hotel

Saturday Evening, April 30

8:00 REGISTRATION

PAST PRESIDENTS' MEETING

HOSPITALITY PARTY—

*Courtesy Munns Medical
Supply Company*

4:00 VOLUNTARY STERILIZATION

*H. Curtis Wood, Jr., M.D.
New York Committee of
Voluntary Sterilization*

6:30 BANQUET

INSTALLATION OF OFFICERS

*Mary Jo Hall, Past President
Kansas Medical Assistants Society*

Sunday, May 1

8:00 REGISTRATION

COFFEE

EXECUTIVE BOARD MEETING

THE PROFESSIONAL WOMAN

*O'Ruth Petterson, M.D.
Wichita*

10:00 CALL TO ORDER

*Jenevieve Carter, President
Kansas Medical Assistants Society*

Monday, May 2

10:05 INVOCATION AND CREED

*Eula Hartner, President Elect
Kansas Medical Assistants Society*

8:00 REGISTRATION

COFFEE

9:00 CALL TO ORDER—ANNOUNCEMENTS

Jenevieve Carter, presiding

10:10 WELCOME

*Warren Meyer, M.D., Vice President
Sedgwick County Medical Society*

9:15 GREETINGS

*Jean Cardinell, President
Sedgwick County Medical
Assistants Society*

10:20 RESPONSE

*George Burket, Jr., M.D., President
Kansas Medical Society*

9:30 MEDICAL ASSISTANTS AID TO CANCER
PATIENTS

*John King, M.D.
Washington, D. C.*

10:30 BUSINESS SESSION—ELECTION OF OFFICERS

Jenevieve Carter, presiding

10:30 BLUE SHIELD

*Proctor Redd
Kansas Blue Cross-Blue Shield*

TID BITS

*Marge Slaymaker, President
American Association of
Medical Assistants*

11:00 COMEDY SKIT—"MENOPAUSE"

11:30 FILM "DIAL"

*Mrs. F. C. Newsom, Legislative Chairman
Woman's Auxiliary to the
Kansas Medical Society*

12:00 PRESIDENTS' LUNCHEON

1:30 BUSINESS SESSION RECONVENES

12:00 LUNCHEON

2:30 RULES AND REGULATIONS—MEDICARE PRO-
GRAM

*Oliver Ebel, Executive Director
Kansas Medical Society*

1:00 (SUBJECT TO BE ANNOUNCED)

*D. Cramer Reed, M.D.
Wichita*

Kansas Society of Medical Technologists Kansas Society of Pathologists

May 5, 6, 1966, Holiday Inn Midtown

Thursday, May 5

8:00 REGISTRATION

9:00 OPENING OF CONVENTION

*Helen Heath, M.T. (ASCP)
University of Kansas Medical Center*

INVOCATION

GREETINGS

Mayor of Wichita

*Gerald Palmer, M.D.
President of KSP, Salina*

*Sister M. Carmel Heffern, M.T. (ASCP)
President of KSMT, Fredonia*

9:15 ADVANCES IN ENZYMOLOGY

*Derrick Griffin
Dade Reagents, Inc.
Miami Beach, Florida*

10:15 COFFEE

10:35 THE AFIP: ITS PLACE IN AMERICAN MEDICINE

*Brig. Gen. Joseph Blumberg, M.D.
Director, Armed Forces Institute of
Pathology, Board of Certified
Laboratory Assistants*

11:25 CURRICULUM OF KANSAS CERTIFIED LABORATORY ASSISTANTS SCHOOL

*Lois Nelson, M.T. (ASCP)
Teaching Supervisor, CLA Program*

12:00 LUNCHEON—Innes Tea Room

Medical Technology Student Seminar

1:30 ANNUAL BUSINESS MEETINGS

Kansas Society of Pathologists
Kansas Society of Medical Technologists

3:00 COFFEE

3:20 BUSINESS MEETING

6:30 SOCIAL HOUR—BANQUET

Friday, May 6

8:00 REGISTRATION

9:00 ISOLATION OF MIMAE FROM CLINICAL MATERIAL

*John P. Smith, B.A., M.T. (ASCP)
Wichita Clinic, Wichita*

9:30 CRYOSTAT FROZEN SECTIONS

*Antonio Huaman, M.D.
Lattimore-Fink Laboratories, Topeka*

10:00 COFFEE

10:30 MEDICINE IN TROPICAL AFRICA

Brig. Gen. Joseph Blumberg

11:30 LUNCHEON

1:00 INSTRUMENTATION (tentative)

*Clifford Melone, Ph.D.
Kansas State University, Manhattan*

2:00 HEMATOLOGY SEMINAR

*Sloan Wilson, M.D.
University of Kansas Medical Center*

4:00 ADJOURNMENT

Parliamentary Procedure

A Guide to Govern Deliberations in the House of Delegates of the Kansas Medical Society

MAURICE M. TINTEROW, M.D., *Wichita, Parliamentarian*

MANY OF THE DELEGATES from the component societies of the Kansas Medical Society are unprepared for engaging in the deliberations of the House of Delegates. We are all not expert parliamentarians, nor have we specialized in parliamentary procedure. Usually we are not interested in participating in the business affairs of an organization. It is with this thought in mind that the following Rules of Order are written. I hope that it will be a help and will govern deliberations of the House of Delegates and its committees. This article will be divided into three sections: (1) Rules of order for the meetings of the House of Delegates; (2) A guide for conduct of Reference Committees, and the correct forms of introducing resolutions, and (3) Your parliamentary rights and how to exercise them.

RULES OF ORDER

I. Purpose

Section 1.01. These Rules of Order are set forth to govern the deliberations of the House of Delegates and its committees.

II. Meetings of the House of Delegates

Section 2.01. The House of Delegates shall meet as required in the By-Laws of this organization, provided, however, that there shall be at least a minimum of two meetings at each session separated by at least 24 hours.

III. Subsidiary Committees

Section 3.01. Credentials Committee

Section 3.011. The Credentials Committee shall examine the credentials of all who seek admission to the House of Delegates, and rule on the seating of all members and proposed substitution of others for absentees. All those whose credentials are found to be in order shall be registered and seated as official members of the House of Delegates. Any member of the Society registered for the Annual Meeting may be admitted to the visitors' section, within limits of space.

Section 3.012. An appeal from any ruling of the Credentials Committee may be entered by the

individual whose credentials are in question or by any voting member in his behalf. Such appeal must be entered immediately following the report of the Credentials Committee to the House that a quorum exists and a majority vote by the House of Delegates will decide the issue.

Section 3.013. The Credentials Committee shall designate one of its members to act as Sergeant-at-Arms to act under the direction of the President to insure that all members are properly seated and to carry out the will of the House in the preservation of order.

Section 3.014. The Credentials Committee shall report to the House when requested by the President, on the following:

- (a) Total number of members of the House eligible to vote at this session.
- (b) Number of such members registered and officially seated.
- (c) Announcement of quorum.
- (d) Announcement of Sergeant-at-Arms.

Section 3.02. Reference Committees.

Section 3.021. The following Reference Committees shall be constituted for each session of the House of Delegates for the purpose of considering those items which are referred to them:

- (a) Reference Committee Number 1 for those resolutions bearing even numbers.
- (b) Reference Committee Number 2 for those resolutions bearing odd numbers.

Section 3.022. Within six days after receipt of a list of items of business to be considered at the next session of the House of Delegates, the President shall recommend through the Executive Office that such additional Reference Committees shall be constituted as, in the judgment of the President, appear to be necessary for the most effective handling of the business to be introduced.

Section 3.023. The President shall appoint the personnel of each Reference Committee as will insure that such committees will be fully constituted at least ten days prior to the first meeting of the House of Delegates.

Section 3.024. No Reference Committee shall consist of less than five nor more than seven members, each of whom shall have been members in good standing of the Kansas Medical Society for at least five years, except that the President may designate technical or consultatory assistants in excess of that number. Such assistants need not be members of this Society and shall act solely in an advisory capacity and be without vote.

Section 3.025. The duties of the Reference Committees shall be:

(a) To hold open hearings on all items of business which have been referred to it, at such time and place as shall have been announced at the first meeting of the House of Delegates.

(b) To deliberate in closed session on each item of business which has been referred to it, and after full consideration to make a recommendation as to its final disposition in the House.

(c) To prepare a written report for the second meeting of the House of Delegates presenting its recommendations on each item of business which has been referred to it.

Section 3.026. In its hearings, deliberations and recommendations each Reference Committee shall be guided by and shall adhere to the provisions set forth in "Guide for Conduct of Reference Committees."

IV. Order of Business

Section 4.01. First meeting of the House of Delegates.

Section 4.011. At the first meeting of the House of Delegates, all items of business which have been published in the official publication of this Society shall be introduced by title, and referred without debate or action to an appropriate Reference Committee, except as otherwise stipulated in these Rules of Order.

Section 4.012. All other items of business which have not been previously published and distributed to the members of the House shall be read in full, unless in the opinion of the President, concurred in by the House, it is considered desirable to introduce it in an abbreviated form.

Section 4.013. Proposed amendments to any reports or any other items of business which have been introduced may be entered immediately following the introduction of the item to which it refers or under "New Business." Such proposal shall be in writing, and shall not be debated nor acted upon at the first meeting, but shall adhere to the item of business to which it pertains.

Section 4.014. The Order of Business at the First House of Delegates shall be: (unless other-

wise ordered by a two-thirds vote of the delegates present)

1. Registration of delegates, ex-officio members and visitors.
2. Call to order by the President.
3. Announcement of the number of delegates, ex-officio members present and registered, and the presence of an official quorum.
4. Nominations from the floor for each elective office and a ballot vote where three or more candidates have been nominated for one office.
5. Reading of the minutes of the last or any special meeting.
6. Report of Reference Committee on reports printed in the JOURNAL with details of recommendations and resolutions therein requiring action by the Society.
7. Supplemental reports from committees or officers.
8. Report of the Executive Secretary.
9. Report of the Treasurer.
10. Unfinished business.
11. New business and resolutions offered.
12. Address of the President (if desired).
13. Address of the President-Elect (if desired).
14. Announcements—to include time and place of Reference Committee meeting, names and districts of expiring councilors' terms and to include naming of the two candidates nominated for each contested elective office.
15. Adjournment to reconvene at the second meeting.

Section 4.02. Second meeting of the House of Delegates.

Section 4.021. At the second meeting of the House of Delegates, the House will receive the full report of each Reference Committee on all items of business which were referred to it at the first meeting of the House.

Section 4.022. Each item of business so reported upon shall be subject to full debate, amendment, and any action which the House desires to take upon it, except that any item which has previously been accepted for a first reading may not be amended to any degree that materially alters the original intent of the item.

Section 4.023. No item of business may be considered at the second meeting of the House unless it was introduced at the first meeting and referred to a Reference Committee except as provided for in the By-Laws.

Section 4.024. If a Reference Committee fails to submit a report at the second meeting of the House upon any item which was referred to it at the first meeting, such item may be placed before the House by the President, and must be so placed upon request of any member of the House.

Section 4.025. The order of business at the second meeting of the House of Delegates shall be:

1. Registration and seating of delegates, exofficio members and visitors.
2. Call to order by the President.
3. Election of officers (by ballot): President-Elect, First Vice President, Second Vice President, Constitutional Secretary, Treasurer, Delegate-Elect and Alternate to the American Medical Association.
4. Report of secondary meeting of Reference Committees.
5. Unfinished business.
6. New business.
7. Election of Councilors for expired terms by caucus of delegates present from the respective districts.
8. Announcements of Councilors elected and meeting place of the Council.
9. Installation of the new President.
10. Adjournment.

V. Motions

Only members of the House of Delegates are privileged to make any motions, except that a duly appointed chairman of any Reference Committee or of any Standing or Special Committee of the Kansas Medical Society may make motions pertaining to any matter which has been referred to or considered by his committee, whether he be a member of the House or not, and further, except that any member of a Reference Committee, other than advisory members, may make motions incident to the introduction of and debate on minority reports.

Section 5.02. All resolutions shall be submitted in writing.

Section 5.03. The President may, at his discretion, direct that complicated motions or amendments be submitted in writing.

Section 5.04. A motion to take any tabled motion from the table is in order either during the same session at which it was tabled or during the next session, even if the sessions are held no oftener than annually. In this reference the term "session" shall be understood to include the total number of meetings which are held between the initial convening of the House of Delegates and its final adjournment.

VI. Debate

Section 6.01. Discussion and debate on any matter before the House shall be carried on according to standard parliamentary procedure as outlined in the official parliamentary authority of this Society.

Section 6.011. Any voting or non-voting member of the House of Delegates has the right to discussion of any matter before the House.

Section 6.012. Any duly appointed member of a Reference Committee shall be accorded the privilege of discussing any matter which was considered and is being reported by his committee. This same privilege of discussion and debate shall be extended to the chairman of any duly appointed Standing or Special Committee of the Kansas Medical Society on those items which have been under discussion by his committee.

Section 6.013. Any consultative advisor or technical assistant shall be accorded the privilege of discussing any matter before the House, if invited by the President, or if such request is made by any member, provided, however, that this privilege may be denied such individual by a motion duly entered and passed by a majority of the voting members of the House.

Section 6.02. The President shall be granted the floor without regard to the customary limitations of debate, insofar as this can be done without depriving any other member of his parliamentary rights, and further provided that the President shall be bound by the usual rules of parliamentary decorum, and he shall be subjected to any rules to limit debate which are in effect at that time.

VII. Voting

Section 7.01. Voting shall be carried on according to standard parliamentary procedure as outlined in the official parliamentary authority of this Society.

Section 7.011. The method of voting shall be at the option of the President, except when the method is stipulated in the By-Laws of this Society or the House adopts a motion to vote in a specific way. The President shall state the method of voting when the question is put to vote.

Section 7.012. If the President is in doubt as to the outcome of the vote, he shall call for a retake by some method which will indicate the exact number voting on each side. Likewise, and under the same circumstances, any voting member of the House may request that a retake vote be made.

Section 7.013. A vote offered by proxy or by mail shall not be considered valid except when so stipulated in the By-Laws.

Section 7.014. The Secretary may be instructed by the House to cast a single ballot on either side of the question, but a motion to "cast a unanimous ballot" shall not be in order.

Section 7.02. If any election to an office results in a tie vote, the winner shall be determined by drawing lots.

VIII. Appeals, Challenges and Claims of Illegality

Section 8.01. An appeal, challenge or claim of illegality may be entered only by voting members of the House, except that an appeal from a decision of the Credentials Committee may be entered by the individual whose credentials are in question.

Section 8.011. Appeals from a decision of the chair must be raised immediately after the decision is rendered and before other business has intervened.

Section 8.013. All other appeals, challenges or claims of illegality must be raised at the same session at which the action under question occurred.

IX. Unanimous Consent

Section 9.01. The House may, by unanimous consent, grant any motion, action, or request which is not in violation of any provision in the By-Laws of the Kansas Medical Society even if such action is adjudged to be out of order according to the official parliamentary authority of this Society, or these Rules of Order.

X. Amendment and Suspension

Section 10.01. These Rules of Order may be amended, or any provision thereof temporarily suspended by a two-thirds majority vote of the House of Delegates at any legal meeting of the House.

Section 10.02. No provision of the Rules of Order shall be effective and no amendment to nor suspension of the provisions thereof shall be permitted if such provision or action is in violation of the By-Laws of the Kansas Medical Society, or the laws of the State of Kansas.

XI. Parliamentary Authority

Section 11.01. The latest edition of *Robert's Rules of Order* shall govern all matters not covered by the Rules of Order or the By-Laws of this Society.

Section 11.02. Those situations not so covered shall be decided by the Parliamentarian of the House of Delegates, with the consent of the House of Delegates.

A GUIDE FOR CONDUCT OF REFERENCE COMMITTEES

Each item of business properly introduced into the House of Delegates must be considered by the House of Delegates for their determination. Proper procedure requires that all items be adequately studied and discussed. However, the agenda is increasing. Therefore, it becomes impractical to debate fully on

the floor of the House of Delegates each item submitted. In addition, only members of the House of Delegates have voice in the assembly. This may have an effect of depriving members of the Society (not members of the House of Delegates) an opportunity to be heard.

For these reasons, the Reference Committee system has been established and has been adopted. Considerable responsibility and authority is delegated by the House of Delegates to the Reference Committees. All matters introduced into the first meeting of the House of Delegates are referred by the President without debate to a Reference Committee for their consideration. All items which are related by factual content, policy, or procedure are given to one committee if this is at all possible. Upon the committee members rests the responsibility to thoroughly familiarize themselves with the items appearing on their agenda by seeking all available factual information, by seeking opinion of the membership and, if necessary, by seeking expert advice.

During the first meeting of the House of Delegates, the President refers to Reference Committees each item of business introduced during this meeting. No debate upon the merits is permitted at this time. Instead, all members of the Kansas Medical Society, including those sitting in the House of Delegates, are encouraged to direct their comments, facts, and arguments to the Reference Committee handling this particular item of business. The Reference Committee is the sounding-board of the Society and of the House of Delegates. The committee is composed of members who represent the various geographic areas, who are generally familiar with the business at hand, and who will be objective in their approach to the issues. The House of Delegates imposes upon them the duty and the responsibility to act in their stead and to hear all testimony, to develop all facets of the problem, and to render their considered opinion on all matters of business so referred. In the past, Reference Committees have functioned very well indeed. As a result, reports of the Reference Committees frequently have been adopted as the action of the House of Delegates.

Orientation Session

At the published time, following the first meeting of the House of Delegates, the orientation session of the Reference Committees will be held under the chairmanship of the Parliamentarian of the House of Delegates. This orientation meeting is conducted for the benefit of the Reference Committee members. The Parliamentarian will outline Reference Committee procedure, duties and conduct. The Executive Secretary will distribute a copy of all the pertinent files of the subject matter under discussion. A general question and answer period will follow.

Closed Session

Following the orientation meeting, the Reference Committees shall meet in closed session in prearranged hearing rooms. At this time the chairman shall review with his committee all items on the agenda to familiarize the committee with the agenda to determine what facets of the problem remain undeveloped; to determine effects of the anticipated action upon the Society. Only members of the committee shall be permitted to attend this closed session. However, the Parliamentarian shall be available to determine any procedural questions. Should other technical assistance be needed, the Executive Secretary will arrange such counsel.

Open Hearings

The Reference Committee must hear all members of the Society who wish to appear before the committee on any matter of business on the committee agenda. However, it remains the prerogative of the chairman of the committee to set time schedules of hearings. All members seeking an opportunity to be heard must abide by such posted schedule of hearing. Having been notified by such posted schedule, it becomes the obligation of the member to make himself available to testify before the committee at the proper time. However, subject to the discretion of the chairman, testimony can be heard out of order. Thus, the democratic system is preserved and a planned committee schedule maintained.

The committee may seek or hear testimony of nonmembers, if, in the discretion of the chairman, such information is pertinent and necessary for the committee members to reach an informed opinion concerning a question before it. However, certain limitations should be exercised by the chairman in this regard. Should exhaustive and detailed investigation be required to secure necessary facts, it may be presumed by the Reference Committee that more information should have been submitted with the resolution. In such case, the item may well be reported to the House of Delegates with a *Motion to Defer*.

During the open hearings of the Reference Committees, parliamentary rules should be adhered to only to the extent necessary to maintain order and insure a hearing for everyone who wishes to be heard. However, the chairman must maintain control over the conduct of the proceedings. The testimony and discussion should be germane to the facts at issue but considerable latitude may be tolerated at times. Members of the committee should be encouraged to participate in the discussion. They must remain at all times as objective as possible and pose questions in language to elicit witness opinion and/or additional pertinent facts. However, committee members must

not enter into debate with other committee members or Society members appearing before it. Hearings are for benefit of the Reference Committee and not for the purpose of influencing those who testify before it. While strict parliamentary procedure should be discouraged, it is incumbent upon the chairman to maintain decorum during proceedings and encourage full discussion of the business at hand.

Executive Session

After all witnesses have been heard, the Reference Committee will enter executive session. At this time, members of Reference Committees consider and weigh all the testimony of the open hearing. Finally, the Reference Committee, through its chairman, reports back to the House of Delegates findings on all questions referred to the Reference Committee for consideration with specific recommendation. When this report is read to the House of Delegates by the chairman of the Reference Committee, the chairman will, upon his own motion, move the adoption of the report. It will be presumed that the committee seconds the chairman's motion.

YOUR PARLIAMENTARY RIGHTS AND HOW TO EXERCISE THEM

The following is presented with the sincere hope that it will enable each member of the House of Delegates to fully understand the proceedings of a parliamentary body and thus feel more at home participating in its deliberations. The member who understands these mechanical processes is in a good position to influence legislation to his liking.

General Consideration

An informed delegate with a minimum working knowledge of parliamentary procedure has it within his power to introduce new items and to pass, amend, defeat, table, postpone, and recommit any item before the House if he knows what motions to make and when to make them and can muster enough support to provide the necessary majority when the vote is taken. Under certain circumstances he may bring about reconsideration or even revision of legislation which has already been legally adopted. Control of the House lies in three areas, the MOTION, the DEBATE, and the VOTE.

The Motions

A. The Main Motion—through which all business is introduced in the House.

1. Only one may be under consideration at any given time.

2. Any member may make the second.
3. Subject to motions to amend, table, postpone to a certain time or indefinitely, to refer to committee, and yields, to all except another main motion.

Form: "I move that. . ."

B. To Amend—by which main motions are altered to better suit the desires of the House.

1. Any number may be proposed except that no more than two may be under consideration at any one time.
2. The second amendment may apply either to the first amendment or independently to the main motion.
3. Amendments may be proposed to add, strike out and insert, substitute or divide.
4. An amendment cannot be tabled, postponed or referred separately from the main motion to which it applies.
5. Long or complicated amendments should be proposed in writing.

Form: "I move that we amend the motion by. . ."

C. To Table—by which consideration of a motion is delayed.

1. Never qualify a motion to table. It cannot be tabled "until some other event has occurred" or "until next meeting." Qualifying phrases strip this motion of its rank or precedence.
2. Takes precedence over all subsidiary motions.
3. Cannot be debated or amended but must be voted upon as soon as put.
4. If defeated it may be renewed only after additional discussion has changed the situation which existed when it was defeated.
5. If the motion is passed, the item to which it applies is automatically removed from further consideration together with all the motions which apply to the item tabled.
6. A tabled motion remains tabled until a motion to "take from the table" is passed by the House. Such motion is in order any time in the "same" session (only after business has intervened) or at any time in the "next" session (next year).
7. A motion may be delayed but kept alive indefinitely by voting to table year after year but will automatically die unless such motion to table is renewed at each subsequent session.

Form: "I move that this (motion, resolution, etc.) be tabled."

D. To Postpone—by which further consideration of an item is postponed to a specific time, or in-

definitely (depending upon the wording of the motion). All motions to postpone are debatable.

1. To postpone to a "certain specified time:"

- a. To a later time at the same session. (It is then a special order of business.)
- b. To the next regular session (automatically taken up under "unfinished business").
- c. To a meeting to be held before the next regular meeting.
- d. Cannot be "postponed to a definite time" beyond the next regular session.
- e. But can be postponed an indefinite number of times and thus be kept alive.

Form: "I move that consideration of this motion be postponed until. . ."

2. To postpone indefinitely:

- a. If passed the effect will be to kill the item for that session, and it stays dead unless reintroduced at a subsequent session.
- b. Any item of business which is killed in one session (or dies automatically) may be reintroduced at a subsequent session because one House cannot irrevocably bind a subsequent House to any course of action.
- c. A motion which is postponed indefinitely cannot be further considered at the same session unless the House votes to consider the "motion to postpone indefinitely."
- d. A motion to postpone indefinitely automatically opens up the main motion to debate. The motion to postpone and the merits of the main motion can then be debated concurrently.

Form: "I move that consideration of the motion be postponed indefinitely. . ."

E. To Refer a Recommit—by which items are referred to a committee for further study and subsequent report before being considered further.

1. If no standing committee exists, motion should be clear as to:

- a. Size and constitution of committee.
- b. Who appoints the committee (President or House).
- c. What authority the committee has.
- d. When it shall report.

2. If a standing committee does exist, the House may still refer the item to another committee if by a two-thirds vote they remove this item from the jurisdiction of the standing committee.

3. The membership of such committees must be named before adjournment unless by unanimous consent the House grants the privilege of deferring such appointments to a subsequent time.

Form: "I move that this motion be referred to

the committee (or a new committee) of _____ to be appointed by the President (or by the House by nominations from the floor) for further study and report at the next meeting (or with authority to act in the interim.)”

F. To Reconsider—by which motions previously adopted may be reconsidered.

1. Must be moved by the one who voted on the prevailing side (if the vote was by ballot, his right to move reconsideration may be challenged in which case it will be decided by the House).

2. Any member may second the motion.

3. Any main motion which has been previously adopted or defeated may be reconsidered unless in the meantime the action has been carried out.

4. A motion to reconsider may be proposed only “on the same day” or the “very next day.” (Thereafter the motion is “to rescind.”) It can be proposed immediately after the results of the vote on the original main motion is announced or at a later time within the above limits.

5. It cannot apply to motions to adjourn, suspend the rules or to table.

6. No question can be twice reconsidered.

Form: “I move that we rescind the motion that. . . .”

H. Withdrawing a Motion

1. A motion or its second may be withdrawn by its maker at any time before it is stated by the Chair.

2. It may also be withdrawn after being stated by the Chair up to the time a vote is taken, PROVIDED no one objects to its withdrawal.

3. In case there is an objection, the privilege of withdrawal is decided by a vote of the House.

Form: “I wish to withdraw the motion just made.”

The Rules of Debate

1. Time limit for each speech is ten minutes, except that:

a. Any member may talk more than ten minutes if no one objects, unless the House has voted (two-thirds) to limit debate.

b. The House by two-thirds vote may overrule an objection and extend the time to any member.

2. Each member has the right to speak once on each issue unless the House has voted (two-thirds) to limit debate.

3. Each member is entitled to speak a second time on the same issue unless some other member actually rises to claim the floor in which case he

must yield to one who has spoken less times than he has.

4. A member may speak more than twice on any subject unless objection is raised.

5. One who makes a motion can vote against it but he cannot speak against it.

6. Discussion and debate are not in order at the first meeting of the House. Amendments and other motions affecting legislation introduced at that session will be in order at the second session.

7. The rules of debate may be altered by adoption (two-thirds vote) of any of the following appropriate motions:

a. “I move that each of the members be limited to (or granted) _____ minutes debate on the motion before the House.”

b. “I move that the House limit the number who can speak on the motion before the House to _____ for and an equal number against.”

c. “I move that debate be automatically closed at _____ o’clock and that each member be granted _____ minutes.”

d. If it is desirable to cut off further debate and force an immediate vote on any motion make the following motion:

“I move the previous question.” This has the effect of stopping all debate instantly until a vote is taken on the motion for “previous question.” If this motion is adopted, an immediate vote must be taken on the motion under discussion. If lost, the debate may resume where it left off.

NOTE: Any of the above motions may be made at any time during debate provided it does not interrupt a speaker.

Only the motion “to table” takes precedence over them.

The Rules of Voting

1. If the question under vote is not clear you should request, “Will the Chair please restate the motion?”

2. The following are common acceptable methods of voting:

a. By voice—Inaccurate for close votes.

b. By hand—More accurate to count and should be used for close votes.

c. By rising—More accurate to count and should be used for close votes.

d. By secret ballot—Must be used wherever called for in By-Laws and should be used whenever disclosing one’s vote would cause pain or embarrassment.

3. Any member who is uncertain of the accuracy of a voice vote should call out without rising, “I doubt the vote.” This should be done immediately

after the Chair has announced the results (not before). The Chair will then take the vote again by hand or by rising.

4. In case of a tie, the motion is lost except on a vote to sustain the decision of the Chair (on an Appeal). A tie vote sustains the decision.

5. The House, by majority vote, or silent consent, may direct that a vote be taken by secret ballot or by roll call. Such a motion may be entered by any member.

6. Anyone may change his vote up to the time the Chair announces the final result by rising and stating his desire to change his vote.

Miscellaneous Information

1. At the first meeting of the House, all business is introduced and referred without debate or action to an appropriate committee.

2. At the second meeting the Reference Committees present their reports and all items are subject to debate and final action. New business may be introduced only with the consent of two-thirds of the House by vote.

3. The House may vote to suspend the rules by a two-thirds vote, except that By-Laws cannot be suspended even by unanimous consent.

4. Any member may rise to a point of order by which he questions the legality of any procedure or challenges the ruling of the Chair. The Chair may rule on the point of order or submit it to vote (majority). A point of order must be raised at the time of the violation of procedure and is out of order after other business has intervened.

5. Any decision or ruling of the Chair involving opinion or judgment may be appealed by any member who rises to a point of order and states, "I appeal from the decision of the Chair." The House then votes to sustain or overrule the decision. Appeals cannot be made on decisions based on established facts or accepted rules.

6. Any motion, act or request may be granted by the House by unanimous consent if not in violation of the By-Laws. One single objection by a voting member destroys unanimous consent.

The following are the most commonly used mo-

tions listed in order of their rank. By "rank" is meant that when any one of the following motions is under consideration of the House, it is in order to propose any motion listed above it while those below are out of order.

The Privileged Motions:

1. Fix a time to which to adjourn
2. Adjourn
3. Recess
4. Raise a question of privilege
5. Call for orders of the day

The Subsidiary Motions:

1. Lay on the table
2. Previous question
3. Limit, or extend, debate
4. Postpone to a certain time
5. Commit or refer
6. Amend
7. Postpone indefinitely

The Principal Motions:

All main motions, resolutions, etc., which are proposed by a member of a committee.

Conclusions

The best place to influence legislation is at the hearings of the Reference Committees. These hearings are held to give each member an opportunity to express his opinion more informally.

Next: Become familiar with the material under consideration. Learn and apply the rules, principles and procedures of parliamentary practice above and if your proposal fails to pass, it will be because you were unable to convince enough people you are right.

There are many more motions and rules governing their usage and good parliamentary procedure. For further reading you are referred to:

Revised Edition
Robert's Rules of Order
by General Henry M. Robert
Scott, Foresman and Company
Chicago, Illinois



House of Delegates

Resolutions Adopted at Special Meeting, January 16, 1966

George E. Burket, Jr., M.D., President, called a special meeting of the House of Delegates at the request of the Council. This was held on Sunday, January 16, 1966, in Topeka.

The following resolutions were adopted and represent the business transacted at this session.

RESOLUTION NO. 1

Blue Shield Prevailing Charge Plan

WHEREAS, by previous resolution enacted by the House of Delegates on May 12, 1965, Blue Shield has been encouraged to make every effort to develop and implement a service benefit program which—within covered services—would pay participating physicians' professional charges in full; and

WHEREAS, the Prevailing Charge Plan has been developed by Blue Shield in close consultation with practicing physicians; and

WHEREAS, detailed descriptions of this plan have been widely publicized at meetings throughout the various Medical Councilor Districts with copies of this description circulated among all members of the Kansas Medical Society by means of an article in the December, 1965, issue of the JOURNAL; and

WHEREAS, the tenets of the plan establish the opportunity for satisfaction of the public's expressed need for voluntary prepayment programs which feature full predictability within a broad scope of coverage; and

WHEREAS, the plan possesses advantages to the medical profession, in that:

1. It eliminates patient misunderstanding caused by use of the "fee schedule/income limit" concept as a basis for provision of Service Benefits.
2. It establishes a means by which each participating physician may be paid according to his personally established schedule of usual professional charges.
3. It provides the latitude for revision of charges upon reasonable advance notice.
4. It assures the availability of special consideration for exceptional charges when such are necessitated in the management of a patient's condition; and

WHEREAS, it has been ascertained that certain large prospective group accounts and agencies administering medical care benefits under public law will favorably consider a plan to pay full professional charges if it is clearly qualified that such a program is found-

ed upon the Prevailing Charge concept; and

WHEREAS, it would appear that the interests of the public and the medical profession would best be served by supplanting Blue Shield's present intermediate and high level fee schedule plans by such a program; therefore,

Be It Resolved, That Blue Shield's Prevailing Charge Plan be approved as the standard high level Service Benefit program for Kansas; and

Be It Further Resolved, That physicians be urged to participate in this plan and that they be requested to complete expeditiously such agreements and accompanying charge registrations as required to commence implementation of the program by July 1, 1966; and

Be It Further Resolved, That, by the adoption of this resolution, Blue Shield be requested to supplant Schedules 2 and 3 with the Prevailing Charge Plan on the termination date of Schedule 2 and 3 contracts in force as of July 1, 1966.

RESOLUTION NO. 2

Utilization Review Committees

PREAMBLE

In this period of rising hospital costs, physicians can perform a public service through their concerted effort to improve the efficiency of hospital procedures thereby providing the hospitalized patient maximum value for his hospital expenditures. Hospital professional staffs are already performing a great public service in this field through activities of tissue committees, the committees on credentials, on ethics and in other ways. An additional service may be performed if hospital professional staffs appointed utilization review committees whose duties would be to evaluate statistical data relating to admissions practices within the hospital, to explore efficiency in procedure scheduling within the hospital and in other areas toward the end that every patient could be provided the least number of hospitalized days consistent with the best professional practice.

The above would be a service to all hospitalized patients and if, in the performance of this service, the requirements of PL 89-97 are met that fact is incidental to the utilization review committee, except that the 20 per cent of hospitalized patients com-

prising persons over age 65 will be benefited, as will be the 80 per cent comprising those patients under age 65.

WHEREAS, PL 89-97 requires a hospital and nursing home to have a utilization review committee if it is to participate under Part A of PL 89-97, and

WHEREAS, the American Medical Association House of Delegates, in special session on October 2, 1965, resolved that utilization review committees shall consist of practicing physicians, and

WHEREAS, the Council of the Kansas Medical Society, meeting on October 17, 1965, endorsed this statement, and

WHEREAS, action of the Council shall be considered at the next session of the House of Delegates according to the By-Laws of this Society; therefore,

Be It Resolved, That the Kansas Medical Society declare that utilization review committees consist of practicing physicians.

RESOLUTION NO. 3

Separation of Professional Fees and Hospital Charges for Radiological Services

WHEREAS, an arrangement, or contract, under which a radiologist merges his professional fee with hospital costs into a single charge to a patient and then permits the hospital to collect this charge has the following defects:

1. It conceals from patients the professional fee of the physician and the charge of the hospital for facilities, supplies and auxiliary personnel.
2. It tends to increase problems of hospital-physician relationships by providing financial incentives to hospitals to see contract radiologists who will accept terms yielding the highest income in excess of costs to the hospital, rather than to encourage radiological practice by physicians who can and will contribute most to patient care and medical practice in the hospital.
3. It tends to pre-empt the prerogatives of the hospital medical staff in the choice of members of the consulting medical staff in radiology.
4. It identifies the radiologist as a hospital employee rather than a regularly appointed member of the medical staff and his professional services as hospital services which is misleading to hospital governing bodies, patients, insurance carriers, agencies of government, and the public; and

WHEREAS, radiologists in Kansas with such ar-

rangements have recognized the error of permitting these arrangements to continue and are working to separate their professional billings from hospital billings; and

WHEREAS, the House of Delegates of the American Medical Association has on many occasions stated as principle that, "A physician should not dispose of his professional attainments or services to any hospital, corporation or lay body by whatever name called, or however organized under terms or conditions which permit the sale of the services of that physician by such agency for a fee."; and

WHEREAS, the American Medical Association House of Delegates statement on separation of professional fees and hospital charges adopted October 1, 1965, states:

"Hospital-based medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed and collected by the medical specialists in the same manner as are the fees of other physicians.

"Furthermore, the AMA intends to continue vigorously its efforts to prevent inclusion in the future of the professional services of any practicing physician in the hospital services portion of any health legislation."; and

WHEREAS, the American College of Radiology has adopted the policy that the members of the College shall separate their professional fees from hospital charges and present separate bills for professional services to all patients expected to pay for services; and

WHEREAS, the Congress of the United States, in enacting PL 89-97, has declared as a matter of public policy that hospital costs shall be reported separately from the professional fees of physicians including radiologists; therefore

Be It Resolved, That the Kansas Medical Society encourage its member radiologists to strive for arrangements under which they accept full responsibility for establishing, presenting, and collecting fees for the professional services, and

Be It Further Resolved, That the Kansas Medical Society express its approval of *only* those arrangements whereby a radiologist separates his professional fee from hospital charges for technical services, and

Be It Further Resolved, That the Kansas Medical Society request and urge constituent local and county medical societies to assist in implementing these policies.

Councilor Reports

Activities in the Councilor Districts of Kansas

FIRST DISTRICT

The spirit of District One has been greatly enhanced by the addition of new, young physicians who have located at Marysville, Hiawatha, and Horton.

The First District Meeting was held at the country club in Sabetha, October 21, 1965. A dinner for the doctors, their wives and special guests was held at 7:00 p.m.

Following the dinner, the wives adjourned to the home of Dr. and Mrs. Brown. Mrs. Emerson Yoder, First District Councilor, conducted the Auxiliary meeting. Mrs. Lyle Glenn, president-elect from Protection, was the guest.

The doctors were privileged to hear Dr. James McClure, president-elect of the Kansas Medical Society, and R. G. "Swede" Swenson, executive assistant, who presented some of the current problems related to Medicare.

Mr. Proctor Redd and Mr. Jesse W. Prisock of Kansas Blue Shield explained the new "Prevailing Charge Plan" as proposed by Blue Shield.

Most of our doctors await the implementation of Medicare with much uncertainty and a bit of sadness.

VIRGIL E. BROWN, M.D., *Councilor*

SECOND DISTRICT

Under the guidance of Dr. W. P. Williamson, president of the Wyandotte County Medical Society, District Two has had a very active and productive year.

Probably the most outstanding change has been the hiring of a full time executive secretary to carry on the ever-expanding business of the society and medicine in general. Mrs. Martha Hunt comes to us with valued experience and is already proving to us the value of having full time office personnel.

When the time came to finally accept the resignation of our faithful part time executive secretary, Miss Agnes Burns, we could not let her go completely. The society made her an Honorary Member. She is the first lady so recognized and the first lay person ever made an honorary member of the Wyandotte County Medical Society.

Maybe it is a tribute to Neurosurgeon Williamson's ability to influence the human brain, but the vote to quintuple the society dues was unanimous.

The Wyandotte Society is looking forward to co-

operating with the Johnson County Medical Society in being host to the Kansas Medical Society for their annual meeting in 1967. Plans are now in the formative stage.

On January 26, 1966, the Wyandotte and Johnson county societies held a course on the Immediate Care of the Sick and Injured. Area police, firemen, Red Cross, ambulance and emergency room personnel were in attendance. The members of the medical societies acted as faculty.

JAMES G. LEE, JR., M.D., *Councilor*

THIRD DISTRICT

The changing of the boundaries of the Third District have diminished my traveling somewhat. The major activity has been a councilor district meeting in November. At that time the Blue Shield representatives explained the proposed fee schedule changes—subsequently approved by the House of Delegates.

The major portion of this councilor's other activities has been correspondence concerning Selective Service. This has been an onerous service in some cases and not necessarily calculated to win friends.

This councilor would like to express his appreciation for the opportunity to have been of service for the past three years.

DAN L. BERGER, M.D., *Councilor*

FIFTH DISTRICT

The Fifth Council District had few problems this year that were not common to all of free enterprise medicine. The councilor's district dinner in Manhattan in November was a corollary to the discussion of the uniform fee schedule.

Despite the continued economic growth and prosperity of this area of Kansas, attrition rather than growth of our medical population has been the trend. We hope that within the district we can correct this disparity before some study group or committee that has never practiced private medicine comes in to diagnose, dissect, treat and charge us for services we did not solicit. This represents a real and apparent danger which can only be alleviated so long as physicians can provide good medical care within the economic realities of the community—packaged within

the Art, and dispensed so that no unilateral or mutual animosity develops between the general public and the medical profession.

As your councilor, I finish my first term, pleased with the positive goals we have achieved, and more personally humbled and fraternally proud of my colleagues than I thought possible. May we continue in the same spirit!

ALEX SCOTT, M.D., *Councilor*

SIXTH DISTRICT

District Six (Shawnee County Medical Society) has had an active and productive year. I am honored to have served as councilor for this past year. Our membership consists of the following: Active—187; Resident—7; Emeritus—9; Fellowship—7. Total 212.

We are saddened by the death of two members.

The Program Committee has been quite active and the district has benefited by outstanding programs of both scientific and socio-economic values. There has been adequate variety and the programs have been stimulating to the whole membership.

We have had four special district meetings which were well attended. The first one was last fall at which time the president of the Kansas Medical Society and the president of the Auxiliary to the Kansas Medical Society were invited to meet with the group to bring us up to date on activities of the State Society and the State Auxiliary.

Another meeting, held jointly with the auxiliary, was an explanation of the "Greater University Fund." We were shown an interesting film of the University of Kansas School of Medicine history and current activities. Our district responded with a high percentage to the request for donations to the fund.

The next meeting, also jointly with our wives, was a very interesting program by Dr. Dan Turpin about "Project Concern." The project is serving a need in some of the troubled areas of the world and many of our members have been of help to Dr. Turpin and the project he sponsors.

The final district meeting was an informational one presented by the Blue Shield Relations Committee of District Six to explain the new "Prevailing Charge Plan" of Blue Shield. The plan was presented, discussed, and our delegates were instructed by the society to vote in favor of the plan at the special House of Delegates meeting held in Topeka, January 16, 1966. Concern was expressed about some of the details of administration of such a plan, but it was felt that overall, the proposed plan was much better for the people than the present plans offered by Blue Shield.

Our committees have been active on both local

and state levels in many areas. The Committee on Medicine and Religion hosted a meeting of the society with representatives of the clergy as our guests. This meeting was the start of activities which we hope will be productive of mutual benefit for our patients as well as both professions.

The Committee for Relations with the Bar Association sponsored a joint meeting with the members of the legal profession of Topeka with an open forum and panel discussion of the medico-legal aspects of capital punishment.

The Committee on Public Health sponsored jointly with the auxiliary, the extension council, and the county health department, a public meeting which had as a topic "Arthritis." A panel of doctors and physical therapists presented the subject with questions from the audience of about 300. The auxiliary served dessert and coffee, and the extension council had exhibits of Christmas gift ideas and other demonstrations of their activities.

The School Health Committee has been active, as always, working in close cooperation with school officials to supervise and improve the health of our school children.

Members of our district are active in legislative action as well as advisory boards to the state government and State Department of Social Welfare.

Our Committee on Civil Defense is working on communications methods and other areas of disaster care. In cooperation with city officials, I.D. cards have been prepared and distributed to the members of our society to enable us to be of most service in case of a local disaster.

District Six has the privilege of sponsoring a Medical Explorer Post in the Boy Scouts of America. Some of our members are active in helping to support "Halfway House" which now has a branch located in Topeka.

Our members have voluntary assessments, in addition to dues, to help support the Stormont Medical Library, AMA-ERF, and the Topeka Science Fair. The library could not function without our committee. Much of the success of the fair depends upon service given to it by the members of our society.

District Six is proud to be available for medical services to legislators and their families during their residence in Topeka.

The society continues its policy of providing subscriptions of *Today's Health* to all the junior and high schools in the county.

Also, the society still offers telephone answering service to all members and the community, and helps hundreds of people select a family physician or helps in an emergency.

We are strong in our support of AMPAC and KaMPAC. Our members have been active in working

with varied problems in our community, such as nursing education committees of Stormont Vail School of Nursing, hospital planning for the current expansion of hospitals in our area, working towards proper utilization for Medicare and numerous other areas of concern for the health supervision of our populace.

Our social activities included a sports day held in conjunction with the dentists, druggists, and detail men, and an annual spring picnic with our wives. The auxiliary entertained District Six royally with a fashion, talent and popularity show to pick "Mr. Medicine of 1965." Much hidden talent was discovered among our members, and "Mr. Internal Medicine"—Dr. Robert Cotton—was chosen by the judges as "Mr. Medicine of 1965." The auxiliary also sponsored a patron's dance—the proceeds of which were donated to AMA-ERF.

The medical assistants honored the members of District Six with their annual "Bosses' Night" dinner and program.

I want to extend my thanks to the members of District Six for the privilege of being their councilor during the past year. Without the excellent work and cooperation of all our members and of our Executive Secretary, Mr. Ray Selbach and his staff, District Six could not have had such an active and eventful year.

FRANCIS T. COLLINS, M.D., *Councilor*

SEVENTH DISTRICT

The councilor's meeting of November 2, 1965, was well attended, and interest and agreement were shown in the Blue Shield plan of usual and customary charges. We were honored by the visit of Mrs. E. Burke Scagnelli and Mrs. Lyle Glenn, president and president-elect respectively, of the Woman's Auxiliary to the Kansas Medical Society. Dr. John L. Morgan, second vice president, represented the Kansas Medical Society.

Organized medicine is active in District 7 with many committees and staffs actively meeting to improve care and to prepare for the inception of Medicare. Cooperation is good among physicians, and between hospital administration and physicians. There is unity of purpose.

We were saddened by our loss of Dr. P. W. Morgan whose example of medical practice was a stimulus to all of us.

Our delegates to the Council of the Kansas Medical Society are diligent in their attendance and truly represent the thinking of their parent organizations.

I express my thanks to the members of this district for their support.

RICHARD F. CONARD, M.D., *Councilor*

EIGHTH DISTRICT

The component societies of the Eighth District presented no special problems or requests to their councilor during the year.

The society meetings in Butler and Cowley counties have been well attended. The circuit courses were held in Arkansas City, and attracted an excellent attendance from both Kansas and Oklahoma.

A District Eight meeting was held in Winfield on November 18, 1965, with representatives from nearly all the counties in the district. The Woman's Auxiliary was represented by Mrs. Lyle Glenn, the president-elect. Dr. John L. Morgan and Mr. "Swede" Swenson represented the Kansas Medical Society. The Prevailing Charge Plan was presented by Mr. Kenneth Allen of Blue Shield.

The Cowley County Society held a joint meeting with the Ministerial Alliance of Cowley County on January 20, 1966, at which about 90 ministers, doctors, and their wives, listened to a panel discuss better means for cooperation.

I wish to thank everyone in the district for their help and cooperation during the past year.

BRUCE G. SMITH, M.D., *Councilor*

NINTH DISTRICT

In December, a district meeting was held which was well attended by the doctors and their wives. The program was a presentation of the prevailing charge plan by Blue Shield. This was well discussed and well received.

An osteopath has been admitted to the staff of two hospitals in this district.

Of some significance this year has been the legal proceedings wherein the State Supreme Court has reversed a lower Court decision and now states that a Hospital Board does have the right to accept the recommendations of the Medical Staff regarding the qualifications of an applicant for membership. If this decision had not been reversed, there would have been established legal precedent whereby the physicians would have no say about staff membership.

S. C. McCRAE, M.D., *Councilor*

TENTH DISTRICT

Activities of the councilor of the Tenth District, which consists of Marion, Harvey, McPherson, Reno, and Rice Counties, has touched each county as follows:

1. The councilor represented the Society at the dedication of the Kansas Health Museum at Halstead. The museum is an educational project and is open to

the public. It has enjoyed wide publicity regarding the displays, and has had large attendance by schools and interested adults.

2. Attended the district meeting at Hutchinson for the members and Auxiliary. Dr. John N. Blank, former councilor, and Mrs. Blank, councilor for the Tenth District of the Auxiliary, were kind enough to arrange the meeting. Mrs. E. Burke Scagnelli, president of the Woman's Auxiliary met with the members of the Auxiliary to tell of a meeting of Auxiliary officers held in Chicago. Ken Allen of Blue Shield and Dr. John L. Morgan, vice president of the Kansas Medical Society, discussed the Blue Shield plan for allowing customary fees to enable Blue Shield to offer complete coverage.

3. Attended special and regular council meetings in Topeka relative to business to be submitted to the House of Delegates and Executive Committee.

4. Provided information to Dr. Francis T. Collins of Topeka, who is advisor to the State Selective Service System, relative to availability of physicians for military service in this area.

5. Marion, Harvey, and McPherson Counties hold combined meetings three times a year. We were pleased to have good attendance at these meetings and especially pleased to have Dr. George E. Burket, Jr., president of the Kansas Medical Society, attend the Marion County meeting, and to hear him discuss the Medicare proposal.

I have had fine cooperation from members when I have requested it, and no serious problems have been presented.

RALPH R. MELTON, M.D., *Chairman*

ELEVENTH DISTRICT

The year 1965 was an active one for Councilor District Eleven, especially in the area of legislation.

With the Social Security Amendments of 1965 being the main area of concern to the medical profession, the society, in cooperation with the *Wichita Eagle* and *Beacon*, conducted a public forum for the purpose of informing the public of the advantages and benefits of the AMA's Eldercare program as compared to the federal government's Medicare program.

In order to inform our own members regarding the many ramifications of the Medicare Law and its impact on the practice of medicine, several special society meetings were held during the year. Through the society's Speakers' Bureau, this subject was also discussed with almost every civic club and organization within the City of Wichita. The society also participated in several radio and TV programs regarding this subject.

The society conducted its third Immediate Care of the Sick and Injured Course. Interest and participation in this type of paramedical training program continues to remain high. This year's course was expanded to include demonstrations by the local fire department in relation to the proper methods of extricating the injured entrapped in a wrecked vehicle. At the request of the United States Public Health Service, and in cooperation with the Kansas Medical Society's Health and Safety Committee, the local society is coordinating the writing of a Course Guide in relation to the immediate care of the sick and injured. Based on the work that has been completed and the responses from the physicians who have reviewed the various chapters, it appears that this will be a most valuable reference to the people working in the paramedical fields. It is anticipated that this guide will be used throughout the state in future Immediate Care Courses and possibly in other areas of the United States. The content of the book is based on the lectures which have been given in the various Immediate Care Courses held throughout the State of Kansas, as well as from other source material. The guide, which will be 6" x 9" in size, is being compiled by the *Wichita Eagle's* medical writer and illustrated by a surgical resident from one of the local hospitals. It is anticipated that this book will be in print by May, 1966.

In an effort to inform the new society members regarding the organization and functions of the society, as well as the ethical, medical-legal and array of other problems he will face in establishing his practice, the society has developed an orientation course which will be implemented during 1966.

The society is pleased with the change in format of the society's official newspaper which occurred during December of 1964. Through this change, it is felt that the members are kept better informed on matters affecting the medical profession. We have also seen an increase in our national advertising contracts, which has brought the publishing costs of the newspaper, as well as the roster issue, out of the red into the black.

In cooperation with all of the local news media, the society finalized development of a News Media Relations Code. This has been very helpful in eliminating problems and misunderstandings and has strengthened our relations with the news media.

In order to satisfy the numerous requests which are received from the public for speakers on various medical subjects, the society expanded its Speakers' Bureau. On October 15 and 16, 1966, the society has scheduled its second Speakers' Training Seminar. This course will be conducted by the Smith, Kline, and French Laboratories.

The society participated in the "Annual Careers Day," sponsored by the Wichita Board of Education and the Kansas State Employment Service. Several members of the society spoke at all of the local high schools regarding careers in medicine. The society also participated in the board of education's "Business Education Day." Through this program, teachers from the local schools visit various businesses to gain a better understanding of the free enterprise system.

The society, in cooperation with the Wichita Professional Engineering Society and the Wichita science teachers, sponsored the ninth Wichita Regional Science Fair. Some 350 junior and senior high school students from a six-county area participated in the Fair.

A Headstart program was developed and implemented during the year in cooperation with the board of education. Through this program, various health services were provided to pre-kindergarten children coming from the poverty-designated areas of the city.

E. W. CROW, M.D., *Councilor*

TWELFTH DISTRICT

The annual meeting of District 12 of the Kansas Medical Society was held last fall at Harper. The program was a discussion of the Blue Shield prevailing charge plan.

Our district has the honor of having one of our members serving as president of the Kansas Medical Society this year, Dr. George E. Burket, Jr., of Kingman.

The doctor population has remained stable in this district. We lost one doctor, Ferd Burnett of Cunningham, who died during the past year. One new doctor, Robert E. Boyer, has located in Kingman.

It was necessary to request deferment for one doctor in Medicine Lodge and the State Selective Service Board agreed. Therefore, we were able to maintain a more nearly adequate supply of doctors for this area.

F. P. WOLFF, M.D., *Councilor*

THIRTEENTH DISTRICT

It is a duty and pleasure to report that this district has had a rather quiet year. Some attempt has been made to make the boundaries of the district more closely coincide with the boundaries of the local medical societies, with more or less success. With very active local cooperation, coroners and deputies were nominated and appointed for the judicial districts and counties, and with surprisingly little difficulty.

Much of the medical meetings and programs concerned the new government hospital and medical programs and their impact on hospital and medical practice. This also was the chief topic for the annual district meeting, along with the new Blue Shield contracts. The members have endorsed the policies of the Society and of Blue Shield. There is some uneasiness and uncertainty concerning the effect of the new government programs on radiological and pathological specialty practice.

There appears to be perhaps a half dozen men in the district whose age may make them vulnerable to calls to military service. Most of these are solo practitioners or in two-man partnerships, and would be sorely missed. On the other hand, there has not been an influx of new men into the district, although there are several towns which could offer good practices. This councilor finds it distasteful, and because of distances involved, almost impossible to pass judgment on any man's essentiality to his community.

This councilor is grateful that it has been a quiet year, except in his personal affairs.

A. M. CHERNER, M.D., *Councilor*

FIFTEENTH DISTRICT

The 15th District has spent the year trying to follow the Medicare program in its various ramifications, modifications and regulations. We await with interest the finalization of the program, but are still extremely fearful of the extreme amount of power within the Welfare Department. We are also fearful of the fee schedule which will be set and of utilization committees if they do not consist of doctors only.

Several doctors have moved into the area in the past year but some have left through retirement, illness or to enter residency training. We plead with doctors to come and help us in the western part of the state since the extreme distance and population to be covered are so great. The Seward County Medical Society is certainly in an excellent position to receive any physicians, as the city of Liberal is operating extremely shorthanded through retirement and physicians leaving. Many of the smaller towns have lost their only M.D. for one reason or the other. There is an opening for D.O.'s and we will soon be finding them moving into these areas in need of M.D.'s.

The Iroquois Medical Society, a component group of this district, has initiated an extremely active CPC program with Dr. Saylor of Great Bend moderating, and for a multicounty society with very few members, this is certainly to be commended. Ford County Medical Society has welcomed several new

members this year. In cooperation with the Ford County Civil Defense agency a disaster plan was carried out with the setting up of a field hospital. Dr. Max Deardorff, who is an officer in the National Guard, headed this program and did a magnificent job.

Our yearly councilor district meeting was held October 19, 1965, at the Silver Spur. The president of our Society, Dr. Burket and his lovely wife attended, as well as the distaff side of our society, Mrs. E. Burke Scagnelli, president of the Woman's Auxiliary and her husband, Dr. Scagnelli. These meetings are invaluable not only for their comradeship but also for the dissemination of information. Many members do not really get an overall view of our problems except for this yearly get-together. They frequently find themselves uninformed or misinformed as to what the state society, the AMA and our various component societies are trying to accomplish and I think that these meetings serve to air these problems and to give us a better insight into the workings of our Society.

I have enjoyed this year as your councilor. I fear that distance separates us and fear that my communi-

cations to you in the councilor district are too infrequent and too limited.

EVAN R. WILLIAMS, M.D., *Councilor*

EIGHTEENTH DISTRICT

This Council District was relatively quiet for the year as far as any activities outside of the Medicare and new Blue Shield schedule programs. Numerous meetings were held concerning the Medicare program and its possible ramifications. A district meeting, as well as several other discussions, was held concerning the Blue Shield proposal and most of the physicians apparently finally supported this new plan.

The Ottawa hospital has received full accreditation for the next three years. They are at present involved in plans for expanding their facilities there.

The Lawrence hospitals at present are re-evaluating their blood bank programs, with the possibilities of a shift from the Red Cross to the Community Blood Bank program.

Otherwise, as everywhere, physicians of the district are waiting expectantly for the vast changes that Medicare apparently will produce.

ROBERT W. HUGHES, M.D., *Councilor*

House of Delegates

Lassen Motor Hotel

Monday—May 2

7:30 a.m.—Colonial Room

Thursday—May 5

9:00 a.m.—Colonial Room

Reference Committees

Tuesday—May 3—3:45 p.m.

Committee No. 1—Aeronautics Room

Committee No. 2—Frontier Room

Committee Reports

Activities of the Committees of the Kansas Medical Society

AGING

D. V. Preheim, Newton, Chairman; N. W. Anderson, Topeka; D. C. Chaffee, Abilene; R. Chen, Topeka; G. F. Davis, Kanopolis; T. Dechairo, Westmoreland; H. A. Flanders, Hays; J. T. Hamilton, Wichita; J. A. Howell, Wellington; A. M. Isaac, Wichita; C. H. Johnson, Mission; J. J. Marchbanks, Oakley; R. McCoy, Coldwater; R. F. Morton, Arkansas City; T. V. Oltman, Riley; D. L. Rose, Kansas City; H. L. Songer, Lincoln; G. A. Surface, Ellis.

Your Committee on Aging had a stimulating meeting with the representatives of the Kansas Nursing Home Association and was impressed with the serious consideration members of this organization are giving to problems with reference to medical care. They are a mature and dedicated group of persons who seriously regard themselves as a significant factor in the total picture of community health care. They are striving toward improving their services and are eager to increase the number of fully approved facilities under the Joint Commission of Accreditation which was reorganized in January of this year and is now in operation.

In view of this earnest request on the part of nursing home operators for guidance as it relates to professional services given within their homes and because of the increasing effect long-term nursing home care will have in the local program for health services, your committee respectfully submits to the House of Delegates the following resolutions:

RESOLUTION NO. 1

LOCAL SOCIETY REPRESENTATIVES FOR NURSING HOMES

WHEREAS, adequate care of patients in nursing homes requires the interest of physicians and their active participation in the establishment of professional standards of care given within nursing homes, and

WHEREAS, the Committee on Aging will continue to work with the Kansas Nursing Home Association, but to be effective, local relationships between practicing physicians and nursing home operators is necessary, therefore

Be It Resolved, That the House of Delegates recommend that each component medical society within this state appoint a committee or a representative to serve as a channel of communication between the local medical society and nursing home operators within the area.

RESOLUTION NO. 2

NURSING HOME PARTICIPATION IN KHFIS

WHEREAS, health facility planning on a voluntary basis has the approval of the Kansas Medical Society by previous action of the House of Delegates, and

WHEREAS, this activity includes planning of nursing homes as a significant community health facility, therefore

Be It Resolved, That the Kansas Medical Society recommend to the Kansas Health Facility Information Service that they consider submitting an invitation to the Kansas Nursing Home Association to actively participate in its activities on a state-wide basis, and

Be It Further Resolved, That nursing home operators be encouraged to participate in voluntary health facility planning as may be conducted at a local level within this state.

RESOLUTION NO. 3

ONE AND TWO BED ADULT CARE NURSING HOMES

WHEREAS, one and two bed adult care nursing homes are neither inspected nor licensed by any agency within the State of Kansas, and

WHEREAS, residents in these homes deserve assurance of quality care equal to that provided in licensed homes, and

WHEREAS, the 1965 House of Delegates adopted Resolution No. 5 recommending welfare patients be placed in licensed adult care homes, if locally available, and recommended legislation to license all except one and two bed homes, and

WHEREAS, your Committee on Aging believes the last statement of 1965 Resolution No. 5 should be reconsidered, therefore

Be It Resolved, That the House of Delegates recommends to the Legislature of the State of Kansas that all one and two bed adult care homes in Kansas which care for persons other than members of the family and which care for persons for financial or other considerations on a commercial basis be licensed by the agency which licenses other nursing homes in this state.

D. V. PREHEIM, M.D., *Chairman*

ALLIED GROUPS

C. H. Benage, Pittsburg, Chairman; W. M. Cole, Wellington; F. J. Eckdall, Emporia; R. J. Eilers, Kansas City; L. S. Nelson, Salina; H. St. C. O'Donnell, Ellsworth.

The Allied Groups Committee has experienced a year of tranquility.

Your chairman and the executive office believe the interprofessional relationship is probably at an all-time high. We take great pride in being a member of the Allied Groups. Your chairman wishes to especially thank the Kansas Nursing Association, as well as the American Nursing Association, for their excellent cooperation in the progress we have made jointly in solving a mutual problem.

C. H. BENAGE, M.D., *Chairman*

AUXILIARY

N. E. Melencamp, Dodge City, Chairman; R. E. Capsey, Centralia; W. G. Cauble, Wichita; J. G. Claypool, Howard; L. G. Glenn, Protection; J. T. Grimes, Lyons; O. L. Hanson, Topeka; E. G. Neighbor, Kansas City; E. B. Scagnelli, Dodge City.

No formal meeting of this committee was held. The Auxiliary this year emphasized a safety program, in addition to their many other activities.

It is the wish of the Auxiliary to have the permission of the Kansas Medical Society to start a 100 per cent membership-by-county option; that is, when the Society members pay their dues they also pay the state and national Auxiliary dues for their wives. The Auxiliary feels this will increase their membership. This will be discussed further by the committee before offering a resolution.

It would be amiss if we did not express our appreciation for the untiring effort and support of the Auxiliary to our Society—particularly in KaMPAC, AMA- and Kansas-ERF, etc.

In company with our president, Dr. George Burket, and his wife, Mrs. Melencamp and I were dinner guests at the Dodge City Country Club at the Auxiliary's fall conference, September 28, 1965. It was a delightful evening—Mrs. Marge Scagnelli, the Auxiliary president, and her co-workers deserve our highest praise, not only because of the banquet but for their enthusiasm and the fine work they have done in support of the Society.

N. E. MELENCAMP, M.D., *Chairman*

BLUE SHIELD RELATIONS

F. T. Collins, Topeka, Chairman; *District 1*—K. L. Graham, Leavenworth, Chairman; V. E. Brown, Sabetha; W. L. Anderson, Atchison; M. L. Mollohan, Seneca. *District 2*—T. R. Hamilton, Kansas City, Chairman; A. N. Lemoine, Jr., Kansas City, Mo.; E. C. Sifers, Kansas City; D. M. Wald, Kansas City. *District 3*—H. P. Jones, Lawrence, Chairman; R. E. Banks, Paola; J. F. Barr, Ottawa; R. W. Hughes, Lawrence;

G. R. Learned, Lawrence; H. B. Neis, Olathe; D. E. Darnell, Olathe; W. R. Doherty, Prairie Village. *District 4*—J. G. Esch, Pittsburg, Chairman; L. E. Beal, Fredonia; A. E. Bair, Independence; F. X. Lenski, Iola; E. H. Beahm, Independence. *District 5*—E. A. Walsh, Onaga, Chairman; K. M. Boese, Manhattan; J. S. Hunter, Manhattan; R. K. Wallace, Manhattan; C. V. Minnick, Junction City. *District 6*—W. H. Zimmerman, Topeka, Chairman; R. R. Beach, Topeka; F. T. Collins, Topeka; W. R. Powell, Topeka; W. R. Lentz, Topeka. *District 7*—K. L. Lohmeyer, Emporia, Chairman; P. D. Adams, Osage City; S. L. VanderVelde, Emporia; H. J. Dick, Jr., Burlington; E. J. Ryan, Emporia; C. C. Underwood, Emporia. *District 8*—B. G. Smith, Arkansas City, Chairman; J. H. Johnson, El Dorado; J. N. Winblad, Winfield; G. L. Campbell, Arkansas City; H. J. Brown, Winfield. *District 9*—H. S. Dreher, Jr., Salina, Chairman; H. B. Stryker, Jr., Concordia; A. W. Butcher, Abilene; K. G. Wedel, Minneapolis; G. S. Ripley, Salina; H. B. Vallette, Beloit; R. S. Freeman, Salina. *District 10*—H. R. Schmidt, Newton, Chairman; R. P. Stoffer, Halstead; R. W. Fernie, Hutchinson; J. T. Grimes, Lyons; W. J. Collier, McPherson; V. R. Moorman, Hutchinson. *District 11*—G. J. Mastio, Wichita, Chairman; D. U. Loyd, Wichita; W. H. Fritzemeier, Wichita; M. A. Throckmorton, Wichita; W. P. McKnight, Wichita; H. H. Loewen, Wichita; R. H. Robinson, Wichita. *District 12*—W. M. Cole, Wellington, Chairman; V. W. Filley, Pratt; M. D. Christensen, Kiowa. *District 13*—A. M. Cherner, Hays, Chairman; T. F. Taylor, Phillipsburg; J. E. Seitz, Jr., Ellsworth; J. L. Starkey, Russell; W. J. Pettijohn, Russell; G. C. Hutchison, Hays. *District 14*—O. R. Cram, Jr., Larned, Chairman; R. C. Polson, Great Bend; P. K. Wiens, Ness City; R. J. Unrein, Hoisington. *District 15*—E. R. Williams, Dodge City, Chairman; M. H. Waldorf, Jr., Greensburg; H. E. Dittmore, Liberal; A. L. Hilbig, Liberal. *District 16*—J. R. Neuenschwander, Hoxie, Chairman; H. R. Custer, Colby; E. R. Cram, St. Francis; J. J. Marchbanks, Oakley; F. L. Smith, Colby; C. C. Gunter, Quinter. *District 17*—G. W. Fields, Scott City, Chairman; H. M. Wiley, Garden City; G. Von Leonrod, Jr., Dighton.

We have been holding quarterly meetings this year. Most of our work consisted of a study of the "Prevailing Fees Concept" for the payment of physician charges. This plan was presented at combined meetings of the Blue Shield Relations and Kansas Medical Society District Council meetings during the Fall. The information was disseminated in all 18 districts and the plan was adopted at the special House of Delegates meeting in January.

Considerable discussion has been held regarding the implementation of Part B of PL 89-97, and, as you know, Blue Shield has been named the fiscal intermediary for Part B.

The following resolution was approved for presentation to the House of Delegates in May.

RESOLUTION NO. 1

EXTENSION OF OSTEOPATHIC INVOLVEMENT
WITHIN BLUE SHIELD PROGRAMS

WHEREAS, a segment of Kansas Blue Shield members presently secure services from Doctors of Osteopathy which are covered within the scope of benefits of Blue Shield programs, and

WHEREAS, one of the primary concepts of the Prevailing Charge Plan is that Blue Shield will provide benefits for covered services according to confidentially registered charges by physicians and other providers of medical/surgical care, and

WHEREAS, the securement of charge registrations from Doctors of Osteopathy is not readily possible through existing Blue Shield-Osteopathic relationships, and

WHEREAS, present business arrangements between Blue Shield and the Osteopathic Profession make it difficult for the subscribing public to be assured of expeditious benefit provisions in some instances, and

WHEREAS, Blue Shield has succeeded in developing a method which overcomes similar problems which in the past had been encountered in providing benefits for services rendered by members of the Dental Profession, and

WHEREAS, it would be in the best interest of the subscribing public as well as serving common goals of Blue Shield and the Medical Profession if a closer identification between Blue Shield and the Osteopathic Profession might be engendered, therefore,

Be It Resolved, That the Kansas Medical Society approve Kansas Blue Shield's development of an arrangement with the Kansas State Osteopathic Association which would be similar to present arrangements with the Kansas State Dental Association and which would thus permit Kansas Blue Shield to extend within Blue Shield programs the involvement of those Doctors of Osteopathy who are members of the Kansas State Osteopathic Association and are licensed under the Kansas State Board of Healing Arts, and

Be It Further Resolved, That Kansas Blue Shield be permitted to enter into an Agreement with the Kansas State Osteopathic Association which would be similar to that now existent between Kansas Blue Shield and the Kansas State Dental Association.

FRANCIS T. COLLINS, M.D., *Chairman*

CONSERVATION OF EYESIGHT

D. O. Howard, Wichita, Chairman; B. J. Ashley, Topeka; J. E. Hill, Arkansas City; A. N. Lemoine, Jr., Kansas City; C. T. McCoy, Hutchinson; R. C. Polson, Great Bend; E. W. Schwartz, Dodge City; L. P. Warren, Wichita.

A meeting of the Committee on Conservation of Eyesight was held July 11, 1965. The principal topic of discussion was the future practice of medicine

pertaining to eye care that may be affected from a possible court decision against a firm of opticians. This particular firm of opticians has dispensed contact lenses at the directions of ophthalmologists, who have controlled this dispensation entirely. The following requests were made from this committee: First, that the Kansas State Board of Healing Arts be advised to enter this litigation because the lawsuits represents a conflict of regulations formulated by the Board of Healing Arts, which if ruled upon by the court, might adversely affect the future of the Board and the public. It was also advised by this committee that the Kansas Medical Society enter this litigation because it will affect the future practice of medicine if an adverse court decision is rendered.

D. O. HOWARD, M.D., *Chairman*

CONSERVATION OF HEARING AND
SPEECH

C. L. Gray, Wichita, Chairman; J. A. Budetti, Wichita; H. R. Draemel, Salina; E. S. Gendel, Topeka; R. G. Montgomery-Short, Halstead; V. R. Moorman, Hutchinson; W. D. Pitman, Pratt; G. O. Proud, Kansas City.

The committee has held diagnostic hearing clinics for school children in conjunction with the statewide hearing and screening program conducted under the auspices of the Kansas State Department of Health. These were held in five different localities over the state, attempting to cover a wide variance of children.

We held a meeting with the Advisory Board members, which consist of people from the various state departments of education, health and the University of Kansas Medical Center. Discussion was regarding how the program was being implemented and what the future had in store. The plan is now to have two more clinics this year, if possible.

C. L. GRAY, M.D., *Chairman*

CONSTITUTION AND RULES

M. M. Tinterow, Wichita, Chairman; C. C. Conard, Dodge City; J. R. Cooper, Shawnee Mission; A. C. Eitzen, Hillsboro; Wray Enders, Kansas City; C. C. Hunnicutt, Sabetha; J. L. Morgan, Emporia; V. D. Schwartz, Wichita; W. C. Swisher, Wichita; J. R. Twinem, Olathe.

Your Committee on Constitution and Rules expects to recommend to the House of Delegates a series of major amendments to the by-laws which are

1. Provide membership classifications which will be in essential agreement with membership classifications of the American Medical Association.

2. Recommend membership reclassification to make eligible certain physicians such as interns and residents within this state for active membership without the necessity for them paying the full complement of dues. Whereby, the total membership of the Kansas Medical Society may be increased.

3. Reorganize the present unwieldy committee structure into a small group of councils, each to be responsible for a broad category of service and each authorized to appoint from the membership of the society specific committees to accomplish specific projects as they may arise.

4. Change the name of the Council to the Board of Trustees.

5. And in other respects to modernize the language and to rearrange the order of various sections of the by-laws which are being modeled after similar sections already approved in various states.

Your committee expects to meet with the Committee on Plans and Scope and to circulate its joint recommendations to the House of Delegates prior to the meeting on May 2. It has been impossible to complete this work in time for publication in the JOURNAL but expects to have this ready for consideration by the House of Delegates before the meeting.

Since the supply of printed constitution and by-laws of this society has been depleted, and since numerous amendments have been adopted since the last printing, including a major alteration in the creation of a speaker and vice speaker of the House of Delegates, your committee recommends this document be reprinted to include all amendments since its last printing, including those which will be adopted during the 1966 annual session.

M. M. TINTEROW, M.D., *Chairman*

CONTROL OF CANCER

A. M. Cherner, Hays, Chairman; F. F. Allbritten, Jr., Kansas City; N. W. Anderson, Topeka; G. L. Campbell, Arkansas City; W. G. Cauble, Wichita; J. W. Graves, Wichita; K. E. Krantz, Kansas City; C. R. Openshaw, Hutchinson; D. C. Reed, Wichita; R. H. Riedel, Topeka; R. J. Taylor, Wichita; G. M. Tice, Kansas City.

The present chairman of this committee assumed those duties at the beginning of the current Society year. During this time the membership of the committee has increased by several appointments, including the names of some who were doing important work on subcommittees. As has been usual in the past, and because membership of the two committees overlaps, at least two meetings were held with the Medical and Scientific Committee of the Kansas Division of the American Cancer Society.

No new programs have been initiated during the past year. However, several which were authorized during the past two years have been activated and are now showing results. Perhaps the most important single activity is that of the subcommittee on Female Genital Tract Cancer Death Study, in cooperation with the State Board of Health and the University of Kansas Medical Center. This group is meeting quarterly and reports excellent cooperation from the doctors in the state. The most interesting and educational cases are reviewed and summarized and it is expected that several such cases will be published in the JOURNAL OF THE KANSAS MEDICAL SOCIETY in the near future, and at appropriate intervals.

In cooperation with the Kansas Dental Society and the State Board of Health, as well as the Kansas Division of the American Cancer Society, the long authorized and awaited oral cytology program has begun. Kits and literature have been sent to all dentists in the state, although it is still rather early to report any possible results.

It is our intention to maintain cooperation with all state bodies involved in the problem of cancer control. We continue to support and offer help to the Midwest Cancer Conference, and hope this meeting can become more prominent in this area. In cooperation with the Cancer Society, it is hoped that a Speakers Bureau consisting of appropriate specialists in the field may be formed and made available for educational meetings throughout the state.

Following is a report from the chairman of the Sub-committee on Female Genital Tract Cancer Death Study.

A. M. CHERNER, M.D., *Chairman*

FEMALE GENITAL TRACT CANCER DEATH STUDY

(Sub-committee of Committee on Control of Cancer)

D. L. Berger, M.D., Kansas City, Chairman; N. W. Anderson, Topeka; A. M. Cherner, Hays; A. M. G. Crook, Wichita; K. E. Krantz, Kansas City; W. R. Roy, Topeka; G. R. Stone, Manhattan; R. J. Taylor, Wichita.

This sub-committee held an organizational meeting in conjunction with the Midwest Cancer Conference in 1965 at which time a chairman was selected. It was decided to review deaths starting January 1, 1965. The previously developed questionnaires were sent to physicians with an amazing 80.71 per cent (of 140 cases) response to date.

The committee held meetings in September, 1965, and January, 1966, and reviewed selected cases. Each of these meetings was arranged to point out common

errors of diagnosis and treatment of various female genital tract cancers. The discussion among committee members and visitors was lively and informative. Selected cases and their discussion have been picked for publication in the JOURNAL and arrangements for this are in process.

Arrangements for and funding of a brochure to be prepared by Drs. Krantz and Rockwell were accomplished. This brochure is to be mailed to all Kansas physicians with the view of bringing them the latest trends in diagnosis and therapy of malignant lesions of the female genital tract.

The committee feels that the accomplishments to date have been most worthwhile and recommends the continuance of this sub-committee.

DAN L. BERGER, M.D., *Chairman*

CONTROL OF TUBERCULOSIS

J. C. Dowell, Salina, Chairman; M. L. Bauman, Wichita; James Brown, Chanute; L. H. Coale, Kansas City; J. K. Fulton, Wichita; I. S. Kwak, Norton; G. W. Nice, Topeka; C. Pokorney, Halstead; W. E. Ruth, Kansas City; D. E. Wilcox, Topeka.

The committee on Control of Tuberculosis met in Salina, Sunday, February 13, 1966, at 10:00 a.m. The following members were present: Drs. James Dowell, Chairman; James Brown, John K. Fulton, Charles Pokorny, William E. Ruth, Don E. Wilcox, and Mr. W. W. Wilmore, acting recording secretary.

The report of the tuberculosis hospitals, including Norton, Southeast Kansas and the University of Kansas Medical Center, were read and approved. Discussion included the regional chest clinics, the school certification program and a report from the State Board of Health.

The committee felt that next year a member from the Ford County area should be appointed, and also reaffirmed their feeling that a full-time tuberculosis controller, at a salary commensurate with the requirements of this position, should be secured.

The following resolution was presented by Dr. Fulton, seconded by Dr. Pokorny and unanimously carried.

Be It Resolved, That this committee recommends that results of tuberculin testing in the public schools be reported and reportable by responsible school offices to the local and state public health departments, as well as to the patient's private physician, if any, in a manner similar to that now being used in reporting results of photofluorographic x-ray surveys.

JAMES C. DOWELL, M.D., *Chairman*

CORONERS

J. L. Lattimore, Topeka, Chairman; F. R. Applegate, Goodland; C. V. Black, Pratt; G. K. Palmer, Salina; J. S. Reed, Lawrence; W. G. Rinehart, Pittsburg; Jerome Sayler, Great Bend; F. L. Smith, Colby; Sam Zweifel, Kingman.

The Coroners Committee has assisted in implementing the workings of the Coroners' laws, as started on July 1, 1965.

They fostered and promoted a seminar held at Hays on October 5, 1965, at which there were 52 registrations.

They have fostered and caused to be printed the first edition of the *Manual for Kansas Coroners*.

They have cooperated with the University of Kansas Medical Center in fostering their seminar on Medicine and Law, held in January, 1965.

JOHN L. LATTIMORE, M.D., *Chairman*

EMERGENCY MEDICAL CARE

E. B. Struxness, Hutchinson, Chairman; G. L. Ashley, Chanute; F. C. Beelman, Topeka; B. L. Braden, Wamego; J. T. Fowler, Osawatomie; A. C. Harms, Kansas City; H. H. Hyndman, Wichita; R. C. Long, Norton; J. R. Twinem, Olathe.

This year the committee has been actively working to implement resolution No. 2, passed at the House of Delegates meeting in Hutchinson in May. Through a meeting with Dr. E. B. Struxness, the chairman; Don O'Keane, Director of Health Mobilization, State Department of Health; and R. G. Swenson of the Society office in Topeka, correspondence went out to each county society asking them to name one or more members of their society as Emergency Planning County Representatives.

The committee is very appreciative of the results, which now gives us a physician within each county who may be contacted. He is responsible for seeing that adequate medical care is available in case of an emergency either in his county or a neighboring county. The success of the statewide disaster planning depends upon this group. Such a plan will be forthcoming soon.

EMERGENCY PLANNING COUNTY REPRESENTATIVES

<i>County</i>	<i>Physician</i>
Allen	G. B. Pees, Box 348, Iola
Anderson	Robert L. Stevens, 202 W. 4th, Garretts
Atchison	Robert O. Brown, 2nd & O Streets, Atchison
Barton	W. R. Evans, 3923 Broadway, Great Bend

<i>County</i>	<i>Physician</i>	<i>County</i>	<i>Physician</i>
Bourbon	James J. Basham, 102 S. Judson, Ft. Scott	Pratt-Kingman	C. V. Black, 223 E. 4th, Pratt
	Dean T. Gettler, 209 S. Main, Fort Scott	Reno	Sam Zweifel, 349 N. Main, Kingman
Butler	Norman H. Overholser, 300 S. Main, El Dorado	Republic	E. B. Struxness, 2808 Independence, Hutchinson
Central Kansas	V. O. Page, 409 S. Cochran, Plainville	Rice	H. D. Doubek, 2316 G St., Belleville
Chautauqua	M. E. Schulz, 213 W. 7th, Russell	Riley	E. R. Hill, 209 W. Avenue South, Lyons
Cherokee	William Walker, 111 E. Cherokee, Sedan	Saline	William F. Splichal, 120 N. Juliette, Manhattan
Clay	George D. Belcher, Columbus		L. S. Nelson, 135 E. Claflin, Salina
	G. B. McIlvain, 532 Lincoln, Clay Center		G. K. Palmer, St. John's Hospital, Salina
Cloud	C. J. Harwood, Box 428, Glasco	Sedgwick	C. J. Weber, Asbury Hospital, Salina
Cowley	G. L. Campbell, A. C. Office Building, Arkansas City		B. H. Buck, Jr., 5105 E. 21st, Wichita
	H. E. Snyder, 1317 Wheat Road, Winfield	Seward	R. C. Tinker, 425 N. Hillside, Wichita
Crawford		Shawnee	J. D. Reese, Park Plaza Medical Offices, Liberal
Dickinson	Dennis Richards, 4 Main, Herington	Smith	F. C. Beelman, 1319 Huntoon, Topeka
Douglas	H. P. Jones, 4th & Maine, Lawrence	South Central	R. G. Sheppard, 120 E. Court, Smith Center
Edwards	M. Dale Atwood, 616 Niles, Kinsley	Tri-County	M. D. Christensen, 802 Drumm, Kiowa
Finney	Marion Spikes, Plaza Medical Center, Garden City		J. L. Diacon, 124 E. Lincoln, Wellington
Flint Hills	K. L. Lohmeyer, 1024 W. 12th, Emporia		R. E. Bellar, Joslin Hospital, Harper
Ford	Max Deardorf, 806 W. 2nd, Dodge City	Stafford	C. Everett Brown, 102 N. Main, Stafford
Franklin	David G. Laury, 1302 S. Main, Ottawa	Washington	D. A. Bitzer, 115 W. 3rd, Washington
Geary	H. L. Bunker, Jr., 227 W. 7th, Junction City	Wilson	Hugh Bayles, 716 Madison, Fredonia
Greenwood	V. C. Hollenbeck, Box 231, Eureka	Woodson	J. D. Atkin, 1004 Madison, Yates Center
Harvey	R. G. Rate, The Hertzler Clinic, Halstead	Wyandotte	W. W. Abrams, 857 New Brotherhood Building, Kansas City, Kans.
Iroquois	J. H. McNickle, 123 W. 7th, Ashland		F. W. Masters, K.U.M.C., Kansas City, Kans.
Jackson	Moser Clinic, 418 W. 5th, Holton (Any doctor who is there will take the responsibility)		E. B. STRUXNESS, M.D., <i>Chairman</i>
Jefferson	C. P. Arnold, Valley Falls		
Johnson	J. R. Twinem, 541 E. Park, Olathe		
Labette	G. W. Cramer, 1509 Main, Parsons		
Leavenworth	R. S. McKee, 520 Sixth, Leavenworth		
McPherson	William J. Collier, 222 E. Kansas, McPherson		
Marion	P. D. Ens, 122½ N. Main, Hillsboro		
Miami	James Fowler, Osawatomie		
Mitchell	Robert M. Dobratz, 110½ S. Mill, Beloit		
Montgomery	P. E. Barbera, Citizens Building, Independence		
Neosho	Henry Baker, 1501 W. 7th, Chanute		
Northeast Kansas	DeWitt S. Lowe, 202 S. 6th, Hiawatha		
	R. M. Thomas, 1102 Broadway, Marysville		
Northwest Kansas	Floyd Colip, 711 N. Norton, Norton		
Osborne	J. F. Cornely, Osborne		
Pawnee	O. R. Cram, 722 Mann, Larned		
Pottawatomie	B. L. Braden, Wamego Medical Clinic, Wamego		

EXECUTIVE COMMITTEE

G. E. Burket, Jr., President, Kingman; J. A. McClure, President-elect, Topeka; J. C. Mitchell, Immediate Past President, Salina; G. F. Gsell, First Vice President, Wichita; J. L. Morgan, Second Vice President, Emporia; Leland Speer, Secretary, Kansas City; J. L. Lattimore, Treasurer, Topeka.

Your Executive Committee met three times during the year, spacing its sessions between meetings of the Council. Most recommendations of the Executive Committee were referred—as determined by the By-Laws—to the Council. Resolutions applying to such items of business will appear at the request of the Council.

There are two, however, growing out of the last meeting of the Executive Committee which have not yet been reviewed by the Council and will go directly

to the House of Delegates. The first is the Kansas Health Facilities Information Service, Inc. (KHFIS). This voluntary state-wide planning service was created several years ago under a considerable Public Health Service grant. At its inception, the Kansas Medical Society voted to participate and has had a representative on the governing board throughout its existence. The funds appropriated were for a pilot study and as of April 30 will no longer be usable. At that date the organization will cease to exist, or gain support through contributions.

A request for a contribution from this Society for each of the next three years was made to the Council. The Council referred a decision back to the Executive Committee. Information received is that KHFIS is attempting to raise \$80,000 on a three-year basis which will be matched with an equal amount through U. S. Public Health Service appropriations. The Society has been advised Blue Cross-Blue Shield are contributing \$7,500 a year for each of the next three years. Kansas Hospital Association is giving \$5,000 a year. Kansas State Nurses Association is contributing \$1,000 this year and \$500 for each of the next two years. Many other organizations are contributing smaller amounts.

At the time of this writing contributions to KHFIS are short of the goal and there is doubt whether the organization can survive. Your Executive Committee, cognizant of the fact that it may not commit Society funds beyond the date of the next session of the House of Delegates, acted to approve a contribution of \$2,000 to KHFIS contingent upon an agreement that the money will be returned to the Society if the agency fails to meet its budget and is unable to continue to function.

Your Executive Committee respectfully requests the House of Delegates to consider this action. By May 5 it will be established as to how this agency is to function in the future. The House of Delegates should determine what role the Medical Society shall take with reference to KHFIS and establish a policy regarding annual financial participation in its operation.

A second subject the Executive Committee wishes to present directly to the House of Delegates concerns the Student American Medical Association, Kansas Chapter. Again, this subject was presented in some detail to the Council by the Dean of the School of Medicine and then referred to the Executive Committee.

The Dean explained SAMA is well organized at the University of Kansas School of Medicine and has sizable membership. The request from SAMA consists of two parts: (1) that the Kansas Medical Society participate with SAMA in an advisory capacity,

meeting occasionally with the SAMA board, and (2) that financial contributions be given to the Kansas SAMA Chapter by the Medical Society.

Your Executive Committee voted to contribute the expenses of one delegate from the University of Kansas School of Medicine to the National SAMA Conference on a one-year basis and that the situation should be reexamined every year before additional contributions are made.

Your Executive Committee submits to the House of Delegates the question of whether this Society should participate in an advisory capacity and with financial contribution in the activities of the Kansas SAMA Chapter. It is hoped the House of Delegates will establish a policy on this subject which the Executive Committee may follow in the future.

GEORGE E. BURKET, JR., M.D., *Chairman*

FEE SCHEDULES

K. L. Graham, Leavenworth, Chairman; W. L. Bell, Topeka, Radiology; J. N. Blank, Hutchinson, General Practice; H. J. Brown, Winfield, Anesthesiology; C. Clark, Wichita, Anesthesiology; J. G. Claypool, Howard, Internal Medicine; R. B. Coffey, Salina, Orthopedics; W. J. Collier, McPherson, Surgery; R. F. Conard, Emporia, Radiology; G. W. Fields, Scott City, General Practice; W. H. Fritzscheier, Wichita, Dermatology; J. E. Hill, Arkansas City, Ophthalmology; T. C. Hurst, Wichita, Pediatrics; N. M. Jenkins, Salina, Internal Medicine; G. B. Joyce, Topeka, Orthopedics; J. G. Kendrick, Wichita, Obstetrics and Gynecology; W. R. Lentz, Topeka, General Practice; D. U. Loyd, Wichita, Anesthesiology; W. P. McKnight, Wichita, EENT; D. L. Marchbanks, Salina, General Practice; G. R. Maser, Mission, General Practice; G. R. Peters, Kansas City, Surgery; W. R. Powell, Topeka, Surgery; R. R. Preston, Topeka, EENT; R. K. Purves, Wichita, Surgery; W. J. Reals, Wichita, Pathology; M. J. Renner, Goodland, Surgery; L. W. Reynolds, Hays, Surgery; J. E. Roderick, Salina, Urology; L. N. Speer, Ottawa, General Practice; B. E. Stofer, Wichita, Pathology; G. R. Stone, Manhattan, Surgery; R. C. Tozer, Topeka, Neuro-Surgery; N. V. Treger, Topeka, Internal Medicine; S. L. VanderVelde, Emporia, Surgery; R. K. Wallace, Manhattan, Radiology.

Your Committee on Fee Schedules met early in the year and, after reviewing the newly revised fourth edition of the California Relative Value Study, discovered there were numerous refinements not included in the 1961 Kansas edition. By way of example, the index scale was expanded from 150 to a maximum of 200 points which provides for a greater accuracy. There was considerable refinement of description of procedures whereby many were expanded into several divisions resulting in the inclusion of a larger number of listed procedures. It was also discovered

that considerable modification of point values which reflect the relationship of one procedure to others had been accomplished.

Representatives of several specialties on the committee advised their national specialty organization had prepared expanded relative value studies as they related to their own specialties and recommended those tables be included in the Kansas publication.

After considerable discussion, your committee voted to revise the 1961 edition of the Kansas Relative Value Study which would include the recommendations made by all specialties represented on the committee in accordance with authority granted this committee by previous action of the House of Delegates.

Your committee proceeded upon the following basis:

1. The 1964 California Relative Value Study would be used as the base upon which the Kansas Relative Value Study would be built and modified as might be desired.

2. Each specialty would be requested to make specific recommendations for changes in descriptions, code, classifications and point values for procedures relating to the specialty.

3. The full committee would then integrate all recommendations so that the point values, as finally approved by this committee, might be related across its entire range wherever used to construct a fee schedule which would reflect usual and customary charges or prevailing fees within a community.

4. The committee will recommend separate divisions whereby procedures relating to a specific specialty will be grouped together. This is to improve the usability of the book and provides the further opportunity for applying different conversion factors to individual sections within the book as might become necessary when other than usual or prevailing charges are considered in the construction of a fee schedule.

5. And, finally, your committee hopes the House of Delegates will designate the printing of a third edition of the Kansas Relative Value Study according to however this may be adopted during the 1966 annual session.

At the time this report is required for the JOURNAL, the final recommendations have been returned to each of the specialty organizations in this state for one last possible alteration. This has, as of this date, almost been completed. The final results will then be again submitted to the entire committee after which the changes recommended by the committee will be noted for presentation to the House of Delegates. Your chairman is confident members of the committee will conclude their work in time to have this presented at the 1966 annual session.

KENNETH L. GRAHAM, M.D., *Chairman*

HEART DISEASE

M. L. Belot, Lawrence, Chairman; N. W. Anderson, Topeka; C. C. Conard, Dodge City; D. D. Decker, Halstead; A. M. Diehl, Kansas City; M. I. Dunn, Kansas City; Dwight Lawson, Topeka; R. H. O'Neil, Topeka; Katherine Pennington, Wichita; F. A. Thorpe, Pratt; E. N. Tihen, Wichita.

The Committee for the Study of Heart Disease has given consideration to two projects. It has undertaken to co-sponsor with the Kansas Heart Association a study of cardiopulmonary resuscitation in Kansas. It has also given its approval to a series of work simplification programs to be conducted by the Kansas State Board of Health.

MONTI L. BELOT, JR., M.D., *Chairman*

HISTORY

R. R. Melton, Marion, Chairman; J. W. Butin, Wichita; H. C. Clark, Wichita; D. T. Collins, Topeka; J. J. Hovorka, Emporia; D. A. Huebert, Wichita; I. A. Koeneke, Halstead; K. A. Menninger, Topeka; G. E. Paine, Hutchinson; C. D. Shrader, Salina; C. T. Sills, Newton.

A meeting was held in Emporia on May 23, 1965, and one had been planned for February 13, 1966, in Wichita. Only three members indicated they could attend the Wichita meeting; due to the severe weather this meeting was cancelled.

We will again offer a prize of \$100 for a student paper dealing with Kansas physicians, medical institutions, or a faculty member of the University of Kansas School of Medicine.

Dr. Robert P. Hudson of the Department of Medical History, and Dr. Jack Walker, assistant dean of the University of Kansas School of Medicine, have been very cooperative in encouraging this project. I attended the Student Recognition Day at the School of Medicine on June 6, 1965, and presented the 1965 Award to Joseph S. Holman for his paper dealing with the history of the establishment of "Provisions for the Mentally Retarded in Kansas"—a résumé of the Winfield institution.

We will appreciate any suggestions from any of the members for action by this committee.

RALPH R. MELTON, M.D., *Chairman*

HOSPITALS

J. N. Blank, Hutchinson, Chairman; N. W. Anderson, Topeka; G. L. R. Ashley, Chanute; M. C. Eddy, Hays; F. G. Freeman, Pratt; F. R. Frink, Lawrence; E. R. Gel-

vin, Concordia; R. H. Hill, Meade; G. D. Marshall, Colby; B. P. Meeker, Wichita; V. D. Schwartz, Wichita.

Your committee had one long meeting, but prior to this session, considerable research was performed by numerous committee members of volumes of material issued through the Department of Health, Education and Welfare and the American Medical Association.

The result of this meeting was the preparation of a long letter mailed to the membership of the Kansas Medical Society on March 8, 1966. This letter contained the rules and regulations under which utilization review committees would be required to function, the official position of the American Medical Association and the resolution in its entirety as passed by the special session of the Kansas Medical Society House of Delegates on January 16, 1966, on the subject of utilization review committees. The second portion of the letter contained recommendations approved at the committee meeting on the specific appointment and activities of utilization review committees in large hospitals and in small hospitals.

As stated in the letter to the membership, your Committee on Hospitals recommends consideration of these procedures as a guide. It is hoped they may be modified according to local conditions and that the suggestions contained may make it easier for the professional staff of every hospital in this state to organize this activity.

Since some of the factors relating to utilization review committees are directed by law and some approved by Society action, your Committee on Hospitals is of the opinion no further resolutions on utilization review committees need to appear before the House of Delegates at this time.

In addition to the above, your chairman wishes to report excellent relationships exist between the Kansas Hospital Association and Kansas Medical Society. Your chairman and several members of the committee attended the annual convention of the Kansas Hospital Association held in Kansas City. This was an interesting experience and all who were present were cordially received. Your committee recently cooperated in the conduction of a three-day circuit course in which hospital administrators were instructed upon rules governing conditions under which hospitals could participate under PL 89-97. Much of the discussion concerned utilization review committees. Here, again, your chairman wishes to report an excellent reception was given to physicians, and there appeared to be an attitude of complete cooperation with principles relating to utilization review as set down by the Medical Society.

JOHN N. BLANK, M.D., *Chairman*

INDUSTRIAL MEDICINE

O. L. Hanson, Topeka, Chairman; A. S. J. Clarke, Prairie Village; C. L. Francisco, Kansas City; W. A. Harms, Hesston; J. B. Jarrott, Hutchinson; R. K. Purves, Wichita; M. E. Pusitz, Topeka; J. L. Salomon, Wichita.

After all of the members of the committee were questioned, it was decided not to hold a meeting of this committee this year, unless some reason for its meeting arose. It did not arise.

O. L. HANSON, M.D., *Chairman*

MEDICAL ASSISTANTS

D. L. Marchbanks, Salina, Chairman; J. N. Blank, Hutchinson; W. M. Campion, Liberal; H. W. Hiesterman, Quinter; G. H. Keene, Wichita; J. J. Marchbanks, Oakley; Robert H. Moore, Lansing; J. E. Sweeney, Topoka.

WHEREAS, the Kansas Medical Assistants Society has been carrying out an intensive membership campaign, and

WHEREAS, the Kansas Medical Assistants Society, in cooperation with the University of Kansas Extension Service, has been active in organizing educational programs for medical assistants, and

WHEREAS, these activities are undertaken for the ultimate benefit of each practicing physician, therefore

Be It Resolved, That the Kansas Medical Society give every support to the educational program and each individual physician strongly urge each member of his office staff to join the local and state societies.

DONALD L. MARCHBANKS, M.D., *Chairman*

MEDICAL ECONOMICS

L. W. Reynolds, Hays, Chairman; H. C. Blaylock, Wichita; G. E. Kassebaum, El Dorado; W. R. Lentz, Topeka; S. C. McCrae, Salina; R. F. Moore, Caney; L. S. Nelson, Salina; B. E. Stofer, Wichita; R. K. Wallace, Manhattan.

During the past year the Committee on Medical Economics has reviewed the present Society approved insurance programs and has received a large number of proposed new group coverages.

The committee has had one meeting at which time we approved, subject to Council action, a supplementary accident and disability policy written through the Ray Tyler Agency. This does not displace our approval of the Washington National insurance policy which now has enrolled over 1,200 of our members, but allows those of our members who desire more coverage than written by Washington National to purchase a larger policy at reduced group rates.

The committee also discussed at length the Blue Shield prevailing fee proposals and the Blue Cross-Blue Shield programs supplementary to federal Medicare. We also approved, as a committee, the appointment of Blue Shield as the Kansas fiscal agent for Medicare.

We also discussed at length the impact of Medicare and associated welfare programs on medical economics in the future. We believe that each physician should keep well informed on these issues and try to influence any extensions which are sure to come. There will be more changes in medical economics in the next five years than any of us have experienced in long years of practice.

L. W. REYNOLDS, M.D., *Chairman*

MEDICAL SCHOOLS

R. W. Weber, Salina, Chairman; W. C. Bartlett, Wichita; B. H. Buck, Wichita; V. M. Eddy, Hays; D. B. Foster, Topeka; L. F. Glaser, Hutchinson; R. M. Glover, Newton; H. P. Jones, Lawrence; R. H. O'Donnell, Ellsworth; I. J. Waxse, Oswego.

The Committee on Medical Schools met with Dean C. Arden Miller and other members of the medical school faculty in April, 1965. A meeting is also proposed for April 24, 1966.

There were three new department heads appointed at the medical school during the past year: Dr. Strandjurd, Department of Radiology; Dr. Parmley, Chairman, Department of Anesthesiology; and Dr. R. Hudson, Chairman, Department of History of Medicine.

Dr. Jack Walker, assistant dean at the medical school, discussed the affiliated Hospital Programs which the University is conducting. There are affiliations at the present time with the Veterans Administration Hospital, Children's Mercy Hospital, Kansas City General Hospital, St. Luke's Hospital, and Menorah Hospital, all in Kansas City, Missouri; Topeka State Hospital, Wadsworth V. A. Hospital, and the Wichita Hospitals in an Internal Medicine residency program.

Dr. Charles Lewis, who is Chairman of the Department of Preventive Medicine and Community Health, discussed the Community Health Programs. He particularly discussed the first year Medical Student Program which has been extremely successful. The "Home Care Program" with Nursing Education is also quite active at the present time. Dr. Lewis discussed a five-year interval study in an effort to determine where the students are going and the types of practice in which they are engaging.

There was also discussion of the regional medical

complexes for the Study of Heart, Cancer and Strokes. Since this meeting, legislation has been passed in the United States Congress appropriating funds for the Study of Heart, Cancer and Strokes. Regional complexes are to be established throughout the country as a result of this legislation.

A committee was appointed by Dr. Arden Miller, at the medical school, to study the opportunities made available by this legislation. A committee was appointed by the governor of the State of Kansas to meet with this committee, and plans are underway at the present time to obtain funds from the federal government for planning to institute this legislation. A meeting was held at the University of Kansas Medical Center with deans from surrounding medical schools, and the initiative demonstrated by the University of Kansas School of Medicine in this effort was quite apparent.

At the present time, it is not proposed that these funds be used to build additional hospital facilities, but that they be used in supplementing educational and research techniques in these and related diseases.

I do not know of any proposals that the Committee on Medical Schools is making at this time, but perhaps a report and recommendation by Dr. James G. Roney, Jr. should be included at this point.

The study referred to above was presented to the Council, after which the Kansas Medical Society agreed to participate. James G. Roney, Jr., M.D., now Senior Behavioral Scientist at the Stanford Research Institute, Menlo Park, California, proposes an in-depth analysis of the circuit courses offered physicians through the auspices of the University of Kansas Medical Center. Dr. Roney was formerly on the faculty at Kansas. During the development of this project members of the Committee on Medical Schools were present. A brief synopsis from Dr. Roney's report follows:

Since 1911, the University of Kansas Medical Center has provided an active continuing education program both for physicians in Kansas and for those from other states and countries. The program is highly successful and is regarded by many as a model program. It includes symposia, clinical traineeships, intermittent courses, correspondence courses, and the Kansas Circuit Course, which was initiated in 1927. The programs for continuing education were expanded at the request of the Kansas Medical Society, and the Department of Postgraduate Medical Education was created in 1945. About 60 per cent of the practicing physicians in Kansas attend the Circuit Course, which lasts from December 1 to April 30 each year.

The overall objective is to:

1. Provide data to assist the Department of Post-

graduate Medical Education in improving its program.

2. Lay the foundation for future collaborative studies of medical education at the University of Kansas that will be undertaken by the Department of Anthropology and the Department of Postgraduate Medical Education.

3. Assist the Department of Anthropology at the University of Kansas in developing its Applied Anthropology Program. The Department of Anthropology has had approval for development of an applied anthropology program. Several graduate students and faculty members are involved in this program and new faculty members are being recruited. This project will aid in the development of the medical anthropology part of this program which will provide an important link between the medical center and the Lawrence Campus of the University of Kansas.

4. Provide experience in new approaches to the examination of continuing education.

The study will seek to examine the following areas:

1. What was the offering of the Circuit Course to physicians?
2. What factors influenced participation and non-participation?
3. What did the physicians learn?
4. How did physicians use what they learned?
5. What would the physicians like to get out of the course?

The above will be conducted through written questionnaires and a sampling of personal interviews. Participation by this Society is to cooperate in the planning, the conducting, and reviewing the results of this survey. It is hoped individual physicians of the Society will cooperate in the study by giving their personal impressions through interviews or questionnaires as may later be requested.

ROBERT W. WEBER, M.D., *Chairman*

MENTAL HEALTH

H. C. Modlin, Topeka, Chairman; A. J. Adams, Wichita; O. R. Cram, Jr., Larned; W. J. Gardner, Halstead; R. A. Haines, Topeka; L. W. Hatton, Salina; F. C. Newsom, Wichita; R. H. Riedel, Topeka; J. D. Van Antwerp, Jr., Shawnee Mission.

The Committee on Mental Health in two meetings this year considered a number of issues of interest to Kansas physicians. Included in the committee or its guests were: Dr. Robert Haines, Director of Institutions, Dr. H. Ivor Jones, representing the Association of Directors of State and Mental Health Clinics, and Dr. Carter Newsom, Chairman of the Committee

on Policies and Standards of Hospitals and Clinics of the Kansas Psychiatric Society. The committee chairman attended two meetings in Chicago, one sponsored by the Council of State Governments and the National Institute of Mental Health, and one sponsored by the American Medical Association, to consider the multiple problems involved in the development of comprehensive community mental health centers, in Medicare, and in other federal legislation pertaining to developments in the mental health field.

1. *Community Mental Health Centers.* The committee reviewed the development of the 22 centers in Kansas, and noted that most of them are understaffed and underfinanced, due chiefly to the fact that by legislative statute such centers are supported by local tax funds only. This method of funding runs counter to that used in most states, and to that strongly recommended by national leaders in the field. As a result of this kind of funding, only one center in Kansas meets *minimal* requirements for participation in federal financing support. The committee prepared a resolution to be presented to the House of Delegates, urging that the Kansas Medical Society support the principle of multiple financing (local, state, federal, private) for the optimal development of comprehensive community mental health centers to serve the needs of all Kansas citizens.

2. *Administration of State Mental Health Activities.* The deluge of federal legislation in the past three years in the mental health field has brought increasing pressure on state governments to clarify their organizational structure, fiscal policies, and functional efficiency in the mental health area. This legislation, reflecting forward thinking in American psychiatry, emphasizes the importance of continuity of patient care and careful coordination of all psychiatric services (institutional, nursing home, outpatient, preventive, emergency, educational) under one program. It is particularly essential that each state designate only one agency in the mental health field for the receipt of federal funds. The committee prepared a resolution to be presented to the House of Delegates suggesting that the Kansas Medical Society endorse changing the antiquated and restrictive name, Division of Institutional Management, to Division of Mental Health. This change of name should help to endorse the concept of one administrative agency for all mental health activities, and at the same time improve eligibility for federal funds.

3. *Staffing Problems of State Hospitals.* The committee heard with some alarm of the steady loss of mental health personnel because of a significantly lower salary scale in Kansas compared to neighboring

states. Until recently, the quality of psychiatric practice in our mental health institutions was among the best in the nation, but this essential service to the state's citizens is jeopardized by the sharply reduced patient-staff ratio because of resignations and by the great difficulty in recruitment and replacement because of inability to compete with the opportunities offered to physicians, psychologists, social workers, and nurses elsewhere. The relatively low pay scale can easily be interpreted as a relatively low interest on the part of the Legislature and the voters in maintaining high standards of patient care. Consequently, it is difficult for mental health personnel under such circumstances to feel a sense of worth and esteem in their work. The committee prepared a resolution to be presented to the House of Delegates urging that the Kansas Medical Society express its concern and recommend the adoption of a competitive salary scale for mental health personnel.

4. *New Psychiatric Hospital Admission Laws.* The committee reviewed early experiences with these laws which went into effect January 1, 1966, and discussed some widely divergent interpretations of and practices under the laws by some Probate Court judges. In some instances, prospective patients seem duly entangled in legal procedures so as to circumvent partially the law's intent to facilitate speedy proper treatment. Several committee members met with the Attorney General to review these developments and arrange for discussion of these problems by the County Attorneys Association and the Probate Judges Association.

5. Other matters considered by the committee include (a) encouraging Kansas physicians' more active interest in the mental health area, (b) training for mental health center personnel, (c) psychiatric assistance for Public Health Nurses, (d) development of standards for staffing and practice in community mental health centers.

HERBERT MODLIN, M.D., *Chairman*

NECROLOGY

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. H. Greer, Topeka; Dwight Lawson, Topeka; J. A. Segerson, Topeka.

The Committee on Necrology submits the following list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates.

<i>Name and Address</i>	<i>Age</i>	<i>1965</i>
Kenneth J. Gleason, <i>Independence</i>	62	March 22
Clifford L. Van Pelt, <i>Paola</i>	79	March 8
John F. Coffman, <i>Wichita</i>	82	April 4

Daniel W. Melton, <i>Bradenton, Fla.</i>	91	April 19
Herman C. Sartorius, <i>Garden City</i>	61	April 20
Mark A. Brawley, <i>Frankfort</i>	78	May 14
Arthur W. Corbett, <i>Ottawa</i>	83	May 12
R. Dale Dickson, <i>Topeka</i>	55	May 18
Enos A. Nelson, <i>La Jolla, Calif.</i>	88	May 31
Earl J. Frost, <i>Wichita</i>	75	June 5
Ralph E. Cheney, <i>Salina</i>	70	June 6
E. Smith Edgerton, <i>Wichita</i>	80	June 22
Harry C. Nutting, <i>Wichita</i>	84	June 29
Arthur D. Danielson, <i>Herington</i>	59	July 3
Ferd Burnett, <i>Cunningham</i>	85	Aug. 29
Martin Hagan, <i>Wichita</i>	88	Aug. 23
Claude C. Price, <i>Willis, Texas</i>	83	Aug. 14
John Aldis, <i>Fort Scott</i>	54	Sept. 5
Cline V. McWilliams, <i>Kansas City</i>	70	Sept. 3
Jesse R. Prichard, <i>Fort Scott</i>	84	Sept. 8
Francis C. Shepard, <i>Clay Center</i>	57	Sept. 1
Homer S. Foutz, <i>Minneapolis</i>	69	Oct. 23

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Philip W. Morgan, <i>Emporia</i>	63	Jan. 15
Percy C. Carter, <i>Pittsburg</i>	59	Feb. 11
Maurice J. Ryan, <i>Kansas City</i>	56	Feb. 13
Geoffrey M. Martin, <i>Topeka</i>	48	March 12

ORVILLE R. CLARK, M.D., *Chairman*

NOMINATING

H. St. C. O'Donnell, Ellsworth, Chairman; C. H. Benage, Pittsburg; O. W. Davidson, Kansas City; M. C. Eddy, Hays; G. R. Peters, Kansas City.

The Nominating Committee met in Topeka on Sunday, January 16, 1966, and submits the following names as candidates for the elective offices of the Kansas Medical Society:

President-Elect

George F. Gsell, M.D., Wichita. Born in 1907. Graduated from Rush Medical College in 1933. Has served as Councilor and AMA Delegate.

First Vice President

John L. Morgan, M.D., Emporia. Born in 1915. Graduated from University of Pennsylvania School of Medicine in 1940. Has served as Councilor and chairman of committees.

Second Vice President

Robert C. Polson, M.D., Great Bend. Born in 1917. Graduated from University of Kansas School of Medicine in 1942. Has served on numerous committees.

Leland Speer, M.D., Kansas City. Born in 1912. Graduated from the University of Kansas School of Medicine in 1936. Has served as Secretary.

Evan R. Williams, M.D., Dodge City. Born in

1925. Graduated from Northwestern University School of Medicine in 1952. Has served as Councilor.

Secretary

Virgil E. Brown, M.D., Sabetha. Born in 1906. Graduated from the University of Kansas School of Medicine in 1937. Has served as Councilor.

Francis T. Collins, M.D., Topeka. Born in 1914. Graduated from the University of Kansas School of Medicine in 1943. Has served as Councilor.

Treasurer

John L. Lattimore, M.D., Topeka. Born in 1894. Graduated from Fort Worth School of Medicine in 1918. Is currently serving as Treasurer.

AMA Delegate

Lucien R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Has been president of the Kansas Medical Society. Is currently serving as AMA Delegate.

Alternate AMA Delegate

J. Warren Manley, M.D., Kansas City. Born in 1907. Graduated from the University of Kansas School of Medicine in 1940. Has served as Councilor. Is currently Alternate AMA Delegate.

H. ST. CLAIR O'DONNELL, M.D., *Chairman*

PATHOLOGY

A. A. Fink, Topeka, Chairman; W. P. Callahan, Jr., Wichita; R. J. Eilers, Kansas City; J. E. Johnson, Shawnee Mission; H. T. Lettner, Hutchinson; W. J. Reals, Wichita; C. J. Weber, Salina.

The Committee on Pathology held one formal extended meeting and was involved in several other conferences during the year. Perhaps of particular interest to the Society is the application of the Blood Service Plan, Inc., of Scottsdale, Arizona, to operate as an insurance company in the state of Kansas. At the time of this writing the opinion of the Commissioner of Insurance is unknown. Your committee carefully considered professional standards relating to the use of blood and the operation of blood banks. Members of the committee then attended the hearing held by the Commissioner of Insurance for the state of Kansas. The president of Blood Service Plan, Inc. testified that:

1. They pledged the Commissioner to abide by every rule now or made later, even if unreasonable

in their judgment. They would come into Kansas under any conditions he wanted to impose.

2. Even if authorization is granted, they never come into a county within the state until they receive a letter from the County Medical Society requesting them to come in and stating the circumstances under which their program shall operate.

3. Replacement of blood or cash payment is always determined by the bank which furnished the transfusion. The choice is theirs.

4. No hospital or blood bank is ever coerced to accept blood. If desired and when shipment from outside the community is necessary, the closest source only is used.

5. This is an insurance company and can deal in cash payments only. There is an interlocking directorship with the Southwest Blood Bank, a non-profit, fully approved blood bank.

6. Annual premiums for such insurance is \$2.50 a person or \$5.00 a family. The donation of one pint of blood to an agent bank will satisfy the premium payment for one year.

7. Benefits include any number of transfusions except a waiting period is required for existing conditions and some things such as Total Replacement in infants and open heart surgery and the treatment of leukemia, I believe, are excluded.

8. They are in operation in 40 states, including the District of Columbia.

9. Florida, Iowa, California, Michigan and New York denied their application. The company then applied through the Courts. In one state they were approved; in another they were denied; and in the remainder the decision is pending.

10. They want every approved blood bank to be their agent and will deal with each bank either by cash or replacement as the agent bank selects in every instance.

11. They deny this plan depletes the supply of blood and insist it increases the supply. They challenged anyone to supply figures to show that theirs or any other insurance program reduced the supply of blood. Several witnesses expressed their fears on this point.

12. The attorney for the Commissioner asked many questions and in his concluding remarks recommended the application be rejected mainly on the grounds that blood banks could not qualify their employees as insurance agents without training and that the blood donation means of paying the premium resulted in different premium rates for different people according to the price or value of their contribution.

13. The Commissioner said he would study the testimony and would make a decision as quickly as

possible. He invited anyone with any additional opinions or information on this subject to send this to him.

Your committee does not at this time have a specific resolution to present to the House of Delegates, but hopes the report may be read and if the subject described above creates the desire on the part of a delegate or a reference committee to present a resolution we will leave this to their decision.

A. A. FINK, M.D., *Chairman*

PLANS AND SCOPE

W. J. Reals, Wichita, Chairman; H. L. Bogan, Baxter Springs; F. T. Collins, Topeka; N. L. Francis, Wichita; K. L. Graham, Leavenworth; C. C. Gunter, Quinter; J. W. Jacks, Pratt; J. A. McClure, Topeka; J. L. McGovern, Wellington; C. W. Miller, Wichita; J. C. Mitchell, Salina; J. L. Morgan, Emporia; R. P. Norris, Wichita; R. H. O'Donnell, Ellsworth; G. R. Peters, Kansas City; D. C. Reed, Wichita; M. E. Schultz, Russell; R. N. Shears, Hutchinson; E. F. Steichen, Lenora; M. M. Tinterow, Wichita.

Your committee on Plans and Scope expects to hold a meeting prior to the annual session. The current delay is to permit the Committee on Constitution and Rules to complete its work in the preparation of amendments to the by-laws of the Society. Your present committee will meet with the Committee on Constitution and Rules to review these recommendations.

Several other possible changes in Society function may be recommended in addition to the above. A few suggestions have been received from committee members and a study has been made of an elaborate revision of the conduct of the Medical Society of Louisiana. As recommendations from the State of Louisiana might be made to apply in Kansas and as they are agreed upon by your committee on Plans and Scope, resolutions may be prepared according to the wishes of this committee for presentation to the House of Delegates.

It is expected a more complete report together with resolutions will be made at the time of the first session of the House of Delegates.

W. J. REALS, M.D., *Chairman*

POSTGRADUATE STUDY

R. W. Fernie, Hutchinson, Chairman; W. H. Algie, Kansas City; M. S. Allen, Kansas City; O. R. Clark, Topeka; M. H. Delp, Kansas City; C. C. Gunter, Quinter; J. J. Hovorka, Emporia; R. J. Maxfield, Garden City; J. D. Rising, Kansas City; D. J. Tiller, Wichita; E. D. Yoder, Denton.

It is customary to meet with the Dean and selected faculty members of the University of Kansas School of Medicine, including the Director of the Department of Postgraduate Education. These meetings are customarily held near the close of the school year and always too late for including reports of committee action in the JOURNAL. This will again be the case this year.

In general, however, your chairman wishes to report his opinion that relationships between the practicing physicians and the School of Medicine, especially in the area of postgraduate education, are excellent. It is our considered opinion that the cooperative environment between the physicians of this state and the medical school are regarded as a model in other areas of the nation. It is our sincere desire these very pleasant experiences of jointly working on this project may continue. I am confident the members of the committee will support this stand.

Once each year in late April or in May a meeting is held at which plans for the postgraduate programs for the coming fiscal year are planned. The Department of Postgraduate Education at the Medical Center is always most anxious to learn from this committee what the physicians of the state desire to alter in existing programs, what they desire to maintain and how anything can be improved. Annually discussed are such subjects as the selection of sites for circuit courses. The school reviews attendance records and also gives to your committee the record of past program topics. From this experience the programs for the coming year are prepared and always recommendations made by the committee have been very freely accepted and adopted. Your committee is requested to make recommendations even as to the faculty to be employed for the conduct of circuit courses.

Another area of annual discussion is the variety of other postgraduate courses conducted at the University and how any of these may be altered or improved. This generally is conducted in broad outlines because it is more difficult to make specific recommendations on programs that relate to individual specialties and are conducted upon a variety of schedules. However, again the faculty reviews their impressions of previous courses and recommendations are made concerning how these may be improved for the future.

It is anticipated the committee will meet again this spring. If this occurs prior to the annual session, a supplementary report will be submitted should any recommendations appear to be of general interest. The result of this committee's effort will be reflected in the announcement sometime during the summer of the circuit courses and the postgraduate education courses offered for the fall and winter periods.

R. W. FERNIE, M.D., *Chairman*

PUBLIC HEALTH

T. P. Butcher, Emporia, Chairman; H. L. Bogan, Baxter Springs; A. A. Fink, Topeka; E. S. Gendel, Topeka; H. L. Low, Wichita; J. J. Marchbanks, Oakley; R. C. Polson, Great Bend; R. H. Riedel, Topeka; T. F. Taylor, Phillipsburg; E. R. Williams, Dodge City; F. P. Wolff, Pratt.

Your Committee on Public Health has met on several occasions and was concerned principally with the study of health activities and health facilities in Kansas suggested by the Legislature. Every step of the preliminary survey completed prior to November 1 of last year was closely reviewed by this committee and individual members participated in the various sub-committees working through the Board of Health and the Legislative Council of Kansas.

The 1966 Budget Session of the Legislature approved a comprehensive study and appropriated funds to defray such expenses. This committee will again participate in that effort and as findings or recommendations become known, which are of interest to the medical profession, this information will be forwarded through the Society. In the meantime your committee conducts its activity, but believes specific resolutions beyond those adopted by the House of Delegates last May are presently premature.

The Executive Committee requested your Committee on Public Health to cooperate with the Committee on Welfare to examine medical programs currently administered and operated by the Board of Social Welfare. It is planned one more meeting of this committee may be held prior to the 1966 Annual Session. If resolutions are produced as a result of this meeting, they will be mimeographed and submitted at the first meeting of the House of Delegates. Except for that possibility, your Committee on Public Health reports an active year but has no specific resolutions to offer at this time.

THOMAS P. BUTCHER, M.D., *Chairman*

RELATIONS WITH THE BAR ASSOCIATION

E. R. Williams, Dodge City, Chairman; J. O. Baeke, Shawnee Mission; J. J. Basham, Fort Scott; E. S. Brinton, Wichita; D. G. Laury, Ottawa; G. R. Maser, Mission; F. J. Nash, Kansas City; J. A. Segerson, Topeka.

Your committee has attempted several times during the year to meet with the similar committee of the Kansas Bar Association. Conflict of meeting dates has made this impossible.

There has been some correspondence with the chairman of the Bar Association Committee and a tentative agenda for a full committee meeting has

been prepared and approved. In preliminary discussions with representatives of the Bar, there appears to be a spirit of friendly cooperation and environment in which certain broad principles of relationships might be agreed upon.

Your chairman is still hopeful a meeting of the two committees may be accomplished prior to the annual session. Should any agreement be reached at this meeting, this will be reflected in resolutions which will then be mimeographed and made available to the House of Delegates at its first meeting.

E. R. WILLIAMS, M.D., *Chairman*

RELATIONS WITH RELIGION

W. P. Williamson, Kansas City, Chairman; M. D. Athon, Shawnee Mission; R. E. Banks, Paola; R. D. Boles, Dodge City; T. P. Butcher, Emporia; W. M. Cole, Wellington; A. W. Dahl, Colby; L. W. Hutton, Salina; J. E. Hill, Arkansas City; D. S. Lowe, Hiawatha; C. H. Miller, Parsons; H. P. Palmer, Scott City; J. W. Rentfrow, Jr., Hays; A. J. Rettenmaier, Kansas City; H. B. Russell, Great Bend; H. R. Schmidt, Newton; W. C. Schwartz, Manhattan; J. R. Weaver, Wichita; W. H. Zimmerman, Topeka.

The Committee on Relations with Religion has now been reorganized so that each of its 18 members represents a district chairman. Each hopes to organize a committee within its district to promote conferences, seminars, or communication between physicians and clergy. Such meetings have been held in several districts during the past year, and were well received.

The committee cosponsored a formal Postgraduate Seminar in Medicine and Religion at the K.U. Medical Center in October, 1965. Three hundred physicians and clergymen attended, and its excellence achieved national interest. This resulted in an overwhelming demand for a similar course again in 1966, and plans are underway. Physicians in Kansas are urged to attend, and to bring their clergymen as their guests.

The committee met in October, 1965, and will meet again in April, 1966, to report on local meetings, and to assist district chairmen in planning their future activities at the district, county or community level.

WILLIAM P. WILLIAMSON, M.D., *Chairman*

RURAL HEALTH

E. F. Steichen, Lenora, Chairman; C. M. Barnes, Seneca; C. E. Brown, Stafford; V. E. Brown, Sabetha; F. G. Freeman, Pratt; P. H. Hostetter, Manhattan; C. M. Nelson, Oberlin; J. H. A. Peck, St. Francis; J. E. Randle, Bucklin; H. O. Williams, Cheney.

Our activity this year has dealt with the need to

help doctors in the smaller or rural areas. The selective service has, of course, presented problems in this area. Also, we feel there is a need to be met for the rural-oriented physician and patient to seek better ways for the community mental health centers to be effectively operated. We are seeking some help in the field of mental health through our fine post-graduate circuit courses sponsored by the University of Kansas Medical Center.

E. F. STEICHEN, M.D., *Chairman*

SAFETY

G. W. Fields, Scott City, Chairman; E. G. Anderson, Wichita; P. J. Antrim, Attica; N. C. Bos, Hutchinson; R. E. Bula, Hays; W. W. Burney, Wichita; A. C. Eitzen, Hillsboro; J. A. Grove, Newton; C. E. Lewis, Kansas City; S. C. McCrae, Salina; W. A. Nixon, Wichita; G. R. Peters, Kansas City; R. C. Polson, Great Bend; R. H. Riedel, Topeka; J. D. Rising, Kansas City; H. E. Snyder, Winfield.

The Safety Committee met at Great Bend on January 9, 1966, with the following members present: Drs. Robert Polson, William Nixon, Evalyn Gendel, Eugene Anderson and Galen Fields. Others present were Arnold Lewis of the *Wichita Beacon*, Ken Thompson of Gold Cross Ambulance Service of Wichita, and Dwight Allen, executive secretary of the Sedgwick County Medical Society.

After considerable discussion the green light was given to Dr. Anderson to have the manual on "Immediate Care of the Sick and Injured" printed. Much work has been done on this manual by former members of the Safety Committee. We wish to thank Dr. Eugene Anderson and his assistants for the work they have done.

We urge all of you to be more safety-minded.

RESOLUTION NO. 1

COMBINATION OF COMMITTEE FUNCTION

WHEREAS, the functions of the Emergency Medical Care Committee and the Safety Committee of the Kansas Medical Society many times coincide, and

WHEREAS, the care of the sick and injured functions of hospital emergency rooms, poison control centers, transportation, safety of all types, and disaster planning are concerns of members of both committees, and

WHEREAS, by combining these functions the Society will assure the people of Kansas their cooperation in upgrading the services in the field of emergency care and safety, now therefore

Be It Resolved, That the House of Delegates of the Kansas Medical Society recognize a need to establish one final committee consisting of members of both committees to insure continuity of programs, and

Be It Further Resolved, Henceforth this committee shall be named the Medical Emergency Safety Committee.

RESOLUTION NO. 2

EMERGENCY MEDICAL SERVICES

Proposed Resolution on Emergency Medical Services to be presented by the Kansas Medical Society to the American Medical Association House of Delegates at the Annual Meeting in June, 1966. This Resolution would have to be passed by the Kansas Medical Society Safety Committee, then House of Delegates of the State Society prior to being introduced at the American Medical Association Annual Meeting.

WHEREAS, the numbers of emergencies resulting from illness or injury are increasing each year throughout the United States, and

WHEREAS, significant numbers of people can be saved from further aggravation of these injuries and illnesses by skilled handling and transportation to the definitive care of a physician, and

WHEREAS, the physician is vitally concerned with the adequate provision of these services at the community, state and national levels, now, therefore

Be It Resolved, That the House of Delegates of the American Medical Association recognizes the need for medical guidance and leadership in this area of concern, particularly in the development of training of paramedical personnel, community organization, and other emergency services, and

Be It Further Resolved, That the American Medical Association join with other health and medical organizations at the national level in a cooperative effort to improve these services; and that the Association urges state and local medical societies to join with health and medical groups in resolving this problem.

GALEN W. FIELDS, M.D., *Chairman*

SCHOOL HEALTH

E. S. Gendel, Topeka, Chairman; C. M. Barnes, Seneca; A. H. Baum, Dodge City; C. W. Bowen, Topeka; M. E. Christmann, Pratt; F. A. Dlabal, Wilson; H. P. Jubelt, Manhattan; J. W. Manley, Kansas City; C. M. White, Wichita.

This committee met one time on December 5, 1965, in Wichita, Kansas. Another meeting is planned prior to the annual meeting.

OUTLINE OF SCHOOL HEALTH COMMITTEE CONCERNS AND ACTION

1. Since there is increasing interest in the area of health education in schools in light of the changing technology and medical advances, it is appropriate that the Medical Society, through the School Health Committee, should take leadership in insisting that health education is adequately done and that it include the understanding of sexuality as a health entity.

a. In order to bring about leadership in this area, the School Health Committee has contacted the

directors of departments of health and physical education of the colleges in the state. Plans are being made for an informal discussion (or a more formalized program) concerning health education and the physician's role in it.

b. In addition, in order to point out the area of need for education concerning human sexuality, follow-up is being done on the questionnaires sent out by Dr. Barnes last year for providing a circuit course for physicians on "sex education."

c. In taking leadership, the School Health Committee and physicians, through the Medical Society, will do more than offer a resolution commending health education, but also will see to it that such a resolution is delivered into the proper hands both at the college and public school level. (Personal contact, meetings, etc.) This is in keeping with the AMA resolution on Training of Teachers in Health Education and their resolutions concerning unwed mothers and sex education.

2. It was suggested that this committee might be most effective if they cooperated with other committees which held similar interests; especially the Mental Health Committee and the Rural Health Committee. The most obvious overlapping occurs with the Rural Health Committee who are also interested in immunization of school children, health education, etc. It was proposed that the next time a meeting is needed, that perhaps the two committees could meet together, saving additional meetings for some individuals who serve on both committees.

3. In keeping with the AMA activities in venereal disease education, the School Health Committee will attempt to re-establish working relationships with the Venereal Disease Committee in order to facilitate methods for better reporting of venereal disease and to undertake a more vigorous venereal disease education program.

4. The committee reviewed the resolutions on health education, teacher training, sex education, etc., of the AMA-NEA Joint Committee on health programs in schools and proposes the following resolutions of its own relating to these areas.

RESOLUTION NO. 1

HEALTH EDUCATION

WHEREAS, the School Health Committee of the Kansas Medical Society has expressed its concern for the need for effective health education, and

WHEREAS, this concern has also been voiced by the AMA-NEA Committee on Health Problems in Education, American Public Health Association, School Health Section, the American School Health Association, the American College Health Association, and similar groups at the state level, and

WHEREAS, major health problems affecting this coun-

try have brought renewed emphasis on this subject, therefore

Be It Resolved, That the State Department of Education, school boards, and school, college and university administrators become more fully aware of the importance of health as a goal for education, and

Be It Further Resolved, That the School Health Committee of the Kansas Medical Society give encouragement and recognition to agencies conducting research into more effective health education, and

Be It Further Resolved, That teacher preparation institutions recognize the importance of health education as an academic subject and to provide for majors in this field for the certification of teachers to serve the schools.

RESOLUTION NO. 2

ORIENTATION OF PHYSICIANS: SEX EDUCATION OF PATIENTS AND THE COMMUNITY

WHEREAS, the School Health Committee of the Kansas Medical Society has reviewed a survey of Kansas doctors on their concern with respect to the need for medical counseling of patients on sexual attitudes and behavior, and

WHEREAS, the AMA Committee on Maternal and Child Care and the AMA Committee on Human Reproduction have made recommendations urging increased emphasis on orientation of physicians concerning patient education relating to sexual attitudes and behavior, and

WHEREAS, physicians frequently serve as resource persons in this area of health education in schools, colleges, and other youth agencies, therefore

Be It Resolved, That the School Health Committee of the Kansas Medical Society commend all action in recommending increased emphasis on orientation of physicians in the area of sexual attitudes and behavior in the curricula of medical schools, and

Be It Further Resolved, That all medical schools and programs of continuing medical education give consideration to incorporating appropriate learning experiences for physicians in the area of counseling relating to sexual attitudes and behavior.

EVALYN S. GENDEL, M.D., *Chairman*

STATE MEETING FORMAT

J. A. McClure, Topeka, Chairman; J. N. Blank, Hutchinson; Q. C. Huerter, Bethel; G. W. Nice, Topeka; R. K. Purves, Wichita; E. J. Ryan, Emporia; R. Sohlberg, Jr., McPherson.

The Committee on State Meeting Format met in July at the Lassen Hotel in Wichita with representatives of the host society committee. We were greatly impressed with the advanced planning evident from the report of the host committee. Even at the time

it appeared the 1966 Annual Session would be an excellent one. Facilities are available in ample supply and the innovation of holding meetings at the three hospitals in Wichita appeared to hold much promise for a wide interest.

Your committee is confident that the above anticipation will be experienced in generous measure by the time the House of Delegates is in session.

A portion of this meeting was devoted to tentative planning of the 1967 Annual Session to be held in Kansas City. Your committee learned the Wyandotte County Medical Society had requested the Johnson County Medical Society to unite with them in the planning of this meeting and to serve as co-host. This appears to be an excellent idea and is fully endorsed by your committee.

The two societies are currently exploring whether the facilities at the University of Kansas School of Medicine may be utilized for at least a portion of the scientific program. Also still to be determined is whether housing shall be concentrated within Wyandotte County or among the motels available in Johnson County. In either instance, it appears facilities would be available for holding the business sessions of the Society.

Because of lack of housing facilities for such purpose, the problem of whether exhibits should be made a part of the meeting exists. The host societies may prepare a recommendation for your consideration on this subject by May.

The question of exhibits is always a problem except in Wichita and Topeka. Even there, although it increases income to the Society for its conduct of an annual session, expense is also considerably increased as is effort in planning, in assembling and dismantling exhibits and so forth. An exhibit hall is unsatisfactory unless the entrance to scientific meetings leads past each exhibit. This contains advantages and disadvantages to the conduct of the meeting.

Therefore, the committee awaits with interest recommendations to be submitted by the Wyandotte and Johnson county societies on this subject. Even in advance of whatever recommendation might be made, your committee respectfully requests an expression from the House of Delegates on the future of exhibits, both in the commercial and in the scientific area.

Scientific exhibit space is offered without charge to the physician. Decorating cost often approximates \$2.00 for each linear foot utilized. This is borne by the Society. In addition, the Society offers prizes of \$100, \$50 and \$25 for the three scientific exhibits judged by a review committee as the best during each session. In some instances space rental for scientific exhibits adds to the cost.

Exhibitors in the commercial section are invited. Because of situations readily understandable many companies which formerly exhibited are becoming increasingly reluctant to do so. Some have expressed their preference to awarding the Society a grant of money to be used in defraying the cost of the scientific program in lieu of actually sending an exhibit and staffing it during the meeting.

As stated above, your committee does not make a specific recommendation but is at present of the opinion that a decision is necessary and that the present practice of inviting exhibitors at some meetings and not at others, if continued into the future, will react toward further reducing the number of companies willing to send exhibits to the meeting. Therefore, a policy should be established which should then be carried out every year until altered.

JAMES A. McCLURE, M.D., *Chairman*

VENEREAL DISEASE

C. M. Lessenden, Topeka, Chairman; M. L. Bauman, Wichita; C. C. Brown, Wichita; E. S. Gendel, Topeka; A. B. Harrison, Wichita; C. A. Isaac, Newton; M. D. McComas, Jr., Concordia; C. V. Minnick, Junction City; J. E. Roderick, Salina; N. G. Walker, Kansas City.

Although our committee did not meet this year, we would like to report that the incidence of the reported cases have not increased over the past year. It behooves us all to continue our vigilance, and we ask your cooperation in reporting the cases treated. Also, your support and cooperation with other agencies in your communities in an ongoing educational program is vital.

C. M. LESSENDEN, M.D., *Chairman*

WELFARE

J. C. Mitchell, Salina, Chairman; R. G. Ball, Manhattan; D. C. Chaffee, Abilene; M. C. Eddy, Hays; M. R. Knapp, Wichita; D. B. McKee, Pittsburg; L. S. Nelson, Salina; H. St. C. O'Donnell, Ellsworth; L. R. Pyle, Topeka; W. A. Smiley, Jr., Goodland.

Your Committee on Welfare will meet on March 27, 1966, and will probably prepare resolutions for introduction at the Annual Session. However, this will be accomplished too late to meet the printing deadline and whatever resolutions may come through this committee will be presented to the House of Delegates in mimeographed form. An earlier meeting would have proven less beneficial because only now

are sufficient factors becoming available to give the committee material upon which recommendations can be made.

Title XIX of PL 89-97 and its possible implementation in Kansas will be the major item on the agenda for this meeting. Title XIX invokes sweeping changes in welfare programs implying broadened eligibility for recipients of medical care under the welfare and significantly increasing federal appropriations for such services. The finalized rules and regulations to come from HEW have not yet appeared. A set of preliminary rules will be guides upon which the committee will make its decision.

It is known some 20 states have already implemented Title XIX. The Governor of Kansas, in his January message to the budget session of the Legislature recommended against immediate implementa-

tion. Therefore, this will probably become an item of interest to the 1967 General Session of the Legislature. Certain amendments to Kansas law will be required. This may afford an opportunity to the Legislature to review various policies and practices of the State Board of Social Welfare and if medicine has any suggestions to make with reference to health programs conducted under welfare, those recommendations should be made to next year's Legislature.

It is in the hope of suggesting a few guidelines toward improving medical services, hospital care and other health care services to the recipients of welfare that the Welfare Committee will meet and present its suggestions for consideration by the House of Delegates.

JOHN C. MITCHELL, M.D., *Chairman*

KANSAS BASIC SCIENCE BOARD EXAMINATION

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology, and physiology on June 3-4, 1966, at the University of Kansas Medical Center, Kansas City, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application forms and other information can be obtained from Dr. Elbert W. Crandall, Secretary, Kansas Board of Basic Science Examiners, Pittsburg, Kansas 66762.

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

It won't be long now before the annual meeting of the Kansas Medical Society. This year it will be in Wichita, and I have been assured that the program will be excellent.

KaMPAC will have a booth at the meeting with plenty of pamphlets and information. It will be manned at all times, and it is hoped all your questions can be answered.

We want to see all of you at the meeting and are extending you a cordial invitation to visit our booth. Bring your questions and we'll try to answer them.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Personalities—IN KANSAS MEDICINE

Wayne G. Parker, a volunteer in Project Vietnam, returned to Oberlin in February after serving the civilian population in Kontum, Vietnam, for two months. He was named recipient of the Oberlin Jaycees' Distinguished Service Award at a banquet in late February.

Calvin R. Openshaw, Hutchinson, was the speaker at the February meeting of the Heart of America Conservative Club in Kansas City.

The Medicare program was the subject of **J. Warren Jacks'** talk before the Pratt Optimist Club in February.

The superintendent of the Osawatomie State Hospital, **George Zubowicz**, has been appointed special consultant to the National Institute of Mental Health.

C. Arden Miller, dean of the University of Kansas School of Medicine, announced his resignation effective the first of June. After a year's leave of absence, Dr. Miller will return to KUMC as director of the Children's Rehabilitation Unit. He plans to go to London in June for a program of study in the care of handicapped children.

Clarence F. Steinbach, Topeka, was recently

elected to active membership in the American Academy of General Practice.

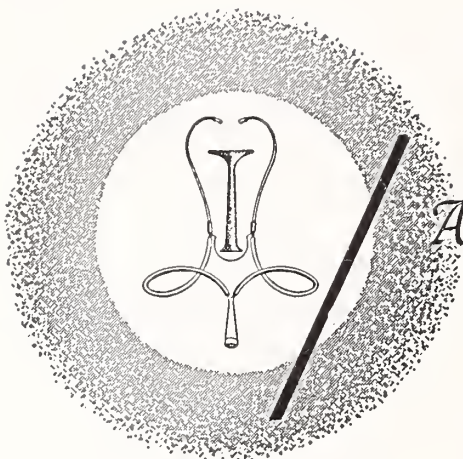
Don H. Berkley was recently called to active duty in the U. S. Air Force. Dr. Berkley expected to leave Abilene in March for a two-year tour of duty.

In February, **Bartlett W. Ramsey**, Topeka, was elected to the board of directors of the Kansas Children's Service League. The election was held at the group's annual meeting in Topeka.

Herbert C. Modlin, Topeka, participated in a panel discussion on the aspects of the new laws pertaining to psychiatric hospitalization at a seminar for county judges and attorneys from Northwest Kansas. The seminar, held in Hays in March, was sponsored by the High Plains Mental Health Clinic.

The county commissioners of Nemaha County announced the reappointment of **Tom Montgomery**, Sabetha, as county health officer.

Lewis F. Wesselius has been appointed assistant director of the C. F. Menninger Hospital, and **Peter Novotny**, is the new chief of the hospital clinical section. Both physicians have been staff members of the Menninger Foundation in Topeka for several years.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

MAY

- May 2-5 Kansas Medical Society, Annual Session, Lassen Hotel, Wichita.
- May 5-7 Annual meeting of the Mid-Central States Orthopaedic Society, Cornhusker Hotel, Lincoln, Nebraska.
- May 12 17th annual Dr. F. G. Thompson, Sr., Lectureship, Thompson, Brumm & Knepper Clinic, 9th and Edmond St., St. Joseph, Missouri. The subject "The Present Status of Organ Transplantation" will be given by Dr. George A. Hallenbeck, Mayo Clinic and School of Medicine.
- May 12-13 Regional meeting, American Society of Internal Medicine, sponsored by the Missouri Society of Internal Medicine, Tan-Tar-A Resort, Osage Beach, Missouri. Members of component societies invited. For information write Robert S. Mosser, M.D., 10901 Winner Road, Independence, Missouri.

JUNE

- June 5-7 First International Congress on Smoking and Health, New York Hilton Hotel, New York City. Registration forms and information are available from the Congress office: Overseas Press Club, 54 West 40th St., New York City.
- June 13-16 Annual convention, Catholic Hospital Association, Cleveland Convention Center, Cleveland, Ohio. Contact: John C. Henry, The Catholic Hospital Association, 1438 S. Grand Blvd., St. Louis 63104.
- June 26-30 115th annual convention of the American Medical Association, Chicago. The Scientific Program will be at McCormick Place and the House of Delegates will meet at the Palmer House.

POSTGRADUATE COURSES

University of Kansas:

- Apr. 20-22 *Anesthesiology*
- May 6 *Infectious Diseases*
- May 9-10 *Otorhinolaryngology*
- May 9-10 *Cardiac Auscultation*

For further information write the Department of Postgraduate Medical Education, University of Kansas Medical Center, 39th & Rainbow Blvd., Kansas City, Kansas 66103.

University of Colorado:

- Apr. 23 *Sex Education in the Schools*
- Apr. 28-30 *Clinical Dermatology* (Limited to 32)
- May 13-14 *Symposium on the Battered Child Syndrome*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Missouri:

- Apr. 20-21 *Family Practice*
- May 7-8 *Midwest Residents Anesthesia Program*
- May 11-12 *11th Spring Clinical Conference: Diabetes Mellitus*

For further information write the Office of Continuing Medical Education, University of Missouri, School of Medicine, Columbia, Missouri.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- May 16-20 *Animal and Clinical Pharmacologic Techniques in Drug Evaluation (Part II)*, Marriott Motor Hotel
- July 25-29 *Interpretation and Therapy of Cardiac Arrhythmias*, Marriott Motor Hotel

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.



HANDBOOK OF PHYSICAL MEDICINE AND REHABILITATION, edited by Frank H. Krusen, M.D., and Associate Editors, Frederick J. Kottke, M.D., and Paul M. Ellwood, Jr., M.D. W. B. Saunders Company, Philadelphia, 1965. 725 pages illustrated. \$16.50.

This handbook was published under the auspices of the American Rehabilitation Foundation; and as its title suggests, it is a handbook. No attempt is made to train one as a specialist in any field. However, since the rehabilitation of an individual patient is a multi-disciplinary affair, it is valuable for each specialist to have some concept of how the other members of the team "think," in terms of the overall treatment of the patient. This is not only to the point where life or limb is saved, but to the termination where the patient is adapted to his environment.

In the larger institutions, the use of conferences facilitate the handling of the patient, especially in convalescent centers. Even here, it is useful to have some concept of how the other members of the team think (and act). In smaller institutions, not as many specialists may be represented in such conferences, and one or more of the members of the team may have to substitute, in addition to his own duties, for some specialty which is not represented. In this, the specialist may find some very apt recommendations, for his edification, in a field in which he has not specialized.

This book, therefore, is more than just a compendium of "physical medicine." There is much "physical medicine" in it. All subjects have been well synopsized so as not to take up too much room; and yet have enough to put across the particular subject involved. There are many topics, not usually found in such a book, as for example, the "neurogenic bowel and bladder." Each topic is so concisely put that no complaint can be made for its insertion. There is such overlapping of various specialties that no excuse need be offered for the insertion of much material. For example, it is a moot question as to

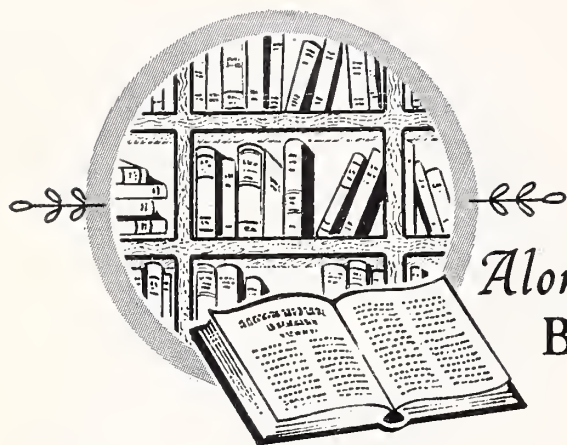
who is the "neuromuscular specialist"; but the manner in which it is presented in this handbook need cause no apprehension on the part of anyone. Moreover, even the specialist may find a point here and there, in his own field, which could be very valuable.

It is a book that can be highly recommended to the profession, and even to the general practitioner of medicine. It is well written, and clear. The staff of writers have been excellently chosen; as their ability to "put it across" attests.—*M.E.P.*

APPRAISAL OF CURRENT CONCEPTS IN ANESTHESIOLOGY, VOLUME TWO, by John Adriani, M.D. The C. V. Mosby Company, St. Louis, 1964. 478 pages. \$10.75.

In the preface to this volume Dr. John Adriani explains his view of the purpose to be served by the text as follows: "We believe certain of these reviews would be of interest to trainees in programs other than our own or to the specialists in anesthesiology who are engaged in strictly clinical practice but who are unable to keep abreast of present-day developments and thinking by perusal of the literature, this being particularly true in phases of the specialty which are not part of their daily routine." This indicates the type of material which has been included. The pharmacology of anesthetic drugs, recent developments in electrical anesthesia, ventilatory problems, physiologic states and their relation to anesthesia, and recent thoughts on blood transfusion and hypotension are among subjects treated.

In writing these summaries the reviewers have not only included digests of articles appearing in recent journals over the past few years but have also prepared short historical statements of previous information on the particular field or subject. These, with the list of references appended to each review, are particularly valuable to the busy anesthesiologist who, despite daily pressures, does not wish to become stagnant or hidebound in his practice of the specialty.—*R.T.P.*



Along The BOOKSHELF

Clendening Medical Library

Recent Acquisitions

- Allen, J. G., Moyer, C. A., Rhoads, J. E. and Harkins, H. N., eds. *Surgery: principles and practice*. 3d ed. Lippincott, 1965.
- Barbara, D. A., ed. *New directions in stuttering*. . . . Thomas, 1965.
- Carter, C. H. and Gustafson, S. R. *Drugs in neurospastic disorders*. Thomas, 1965.
- Curry, G. J., ed. *Immediate care and transport of the injured*. Thomas, 1965.
- Dewing, S. B. *Radiotherapy of benign disease*. Thomas, 1965.
- Dorfman, R. I. and Ungar, Frank. *Metabolism of steroid hormones*. Academic, 1965.
- Evans, R. M. *The chemistry of antibiotics used in medicine*. Pergamon, 1965.
- Eysenck, H. J. *Smoking, health and personality*. Basic Books, 1965.
- Garrison, K. C. and Force, D. G. *The psychology of exceptional children*. 4th ed. Ronald, 1965.
- Greenberg, Morris. *Studies in epidemiology, selected papers*. Putnam, 1965.
- Hirt, M. L., ed. *Psychological and allergic aspects of asthma*. Thomas, 1965.
- Horsfall, F. L. and Tamm, Igor, eds. *Viral and rickettsial infections of man*. 4th ed. Lippincott, 1965.
- Hyman, H. T. *Differential diagnosis*. . . . Lippincott, 1965.
- International Symposium on the Electrophysiology of the Heart, Milan, 1963. *Proceedings*. Pergamon, 1965.
- Jonas, A. D. *Ictal and subictal neurosis*. . . . Thomas, 1965.
- Kaiser, Hellmuth. *Effective psychotherapy*. . . . Free Press, 1965.
- Kendall, P. L. *The relationship between medical educators and medical practitioners*. . . . Assoc. Amer. Med. Coll., 1965.
- Kiernander, Basil, ed. *Physical medicine in paediatrics*. Butterworths, 1965.
- Knutson, A. L. *The individual, society, and health behavior*. Russell Sage Found., 1965.
- Kraus, B. S. and Jordan, R. E. *The human dentition before birth*. Lea & Febiger, 1965.
- Lavin, D. E. *The prediction of academic performance; a theoretical analysis and review of research*. Russell Sage Found., 1965.
- Lorenz, Konrad. *Evolution and modification of behavior*. Univ. Chicago, 1965.
- Luisada, A. A. and Slodki, S. J. *The differential diagnosis of cardiovascular diseases*. Grune & Stratton, 1965.
- McIntyre, Neil and Sherlock, eds. *Therapeutic agents and the liver; a symposium*. . . . Davis, 1965.
- Masturzo, Aldo. *Cybernetic medicine*. Thomas, 1965.
- Moore, D. C. *Regional block*. . . . 4th ed. Thomas, 1965.
- Murphy, J. M. and Leighton, A. H., eds. *Approaches to cross-cultural psychiatry*. Cornell Univ., 1965.
- Nealon, T. F., ed. *Management of the patient with cancer*. Saunders, 1965.
- Reynolds, Jack. *The roentgenological features of sickle cell disease and related hemoglobinopathies*. Thomas, 1965.
- Schulman, J. L., Kaspar, J. C. and Throne, F. M. *Brain damage and behavior; a clinical-experimental study*. Thomas, 1965.
- Shaffer, J. G., Shlaes, W. H. and Radke, R. A. *Amebiasis: a biomedical problem*. Thomas, 1965.
- Shapiro, David. *Neurotic styles*. Basic Books, 1965.
- Siegfried, André. *Routes of contagion*. Harcourt, Brace & World, 1965.
- Society for the Study of Inborn Errors of Metabolism. *Biochemical approaches to mental handicap in childhood; a symposium*. Williams & Wilkins, 1965.
- Spitz, R. A. *The first year of life; a psychoanalytic study of normal and deviant development of object relations*. International Univ., 1965.



PERCY C. CARTER, M.D.

Dr. Percy C. Carter, 59, Pittsburg, died on February 11, 1966, at Mt. Carmel Hospital in Pittsburg.

Dr. Carter was born March 4, 1906, in Indianola, Mississippi. He was graduated from Meharry Medical College in Nashville, Tennessee, in 1934 and also held a Doctor of Philosophy degree from Ohio State University. After completing his internship and residency at the General Hospital in Kansas City, he practiced medicine in Parsons for two years before moving to Pittsburg in 1943.

A member of a number of medical and civic organizations, Dr. Carter was vice president of the Crawford County Medical Society at the time of his death.

Dr. Carter is survived by his wife and sister.

MAURICE J. RYAN, M.D.

Dr. Maurice J. Ryan, Kansas City, died on February 13, 1966, at the age of 56.

Born in West Mineral, Kansas, on September 20, 1909, he moved with his family to Kansas City in 1921. Dr. Ryan received his medical degree from St. Louis University School of Medicine in 1933 and took postgraduate work at New York University. Upon completion of his residency at Bellevue Hospital in New York, he returned to Kansas City to begin his practice in 1938.

After serving four years in the Navy during World War II, he returned to Kansas City and became associated with his brother, Dr. Michael J. Ryan in the practice of otolaryngology and ophthalmology.

Survivors include his wife, two sons, and seven daughters.

GEOFFREY M. MARTIN, M.D.

Dr. Geoffrey M. Martin, 48, died at his home in Topeka on March 12, 1966.

Dr. Martin was born August 28, 1917, at Cold Spring Harbor, New York, and had lived in Kansas since 1947. He was graduated from the Tulane University Medical School in 1943 and interned at Children's Hospital, Boston, Massachusetts. He served in the Navy during World War II and later became an assistant in pediatrics at Johns Hopkins Medical School and the Harriet Lane Home, Baltimore, Maryland. In 1948, he was named executive secretary of the Kansas State Board of Health, a position which he held until his resignation in 1961 when he became director of local health services for the Board of Health. He returned to private pediatric practice in 1962.

Survivors include his wife, five sons, one daughter, two stepsons and two stepdaughters.

The Kansas Medical Society—1965-1966

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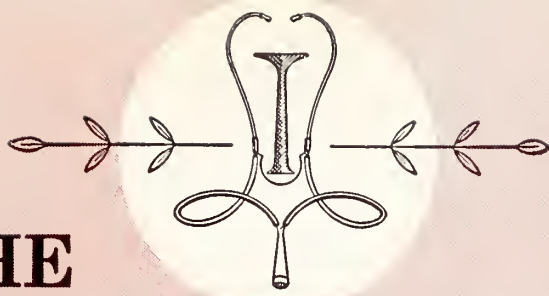
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MAY
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INDICATIONS: Grand mal epilepsy and certain other convulsive states.

PRECAUTIONS: Periodic examination of the blood is advisable. Nystagmus in combination with diplopia and ataxia indicates dosage should be reduced.

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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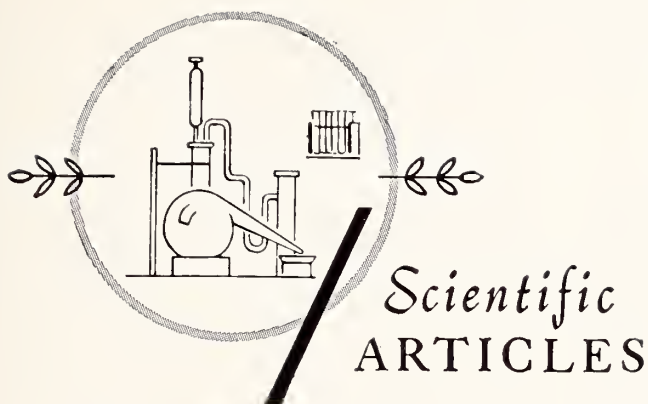
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Thyroid and Auto-Immune Disorders

Thyroid Auto-Antibodies in Hospital Patients

LEO P. CAWLEY, M.D., ADETA RINER, CLIFFORD HOUSER, *Wichita,*
and ANTONIO M. HUAMAN, M.D., *Topeka**

ANTIBODIES TO THYROGLOBULIN have been reported in the serum of patients with various diseases of the thyroid gland, particularly Hashimoto's Disease. Extensive studies by several investigators suggest that Hashimoto's Disease is caused by auto-antibodies and that the patients have apparently sensitized themselves to their own thyroglobulin.^{3, 8-11, 22, 28-32} It is generally agreed that there are at least two distinct thyroid antigen-antibody systems: the intracellular antigen (microsomal fraction) demonstrated by complement fixation technics or antiglobulin consumption test, and the intrafollicular antigens, principally thyroglobulin, demonstrated by agglutination procedures utilizing thyroglobulin-coated tanned red cells or inert particles such as latex and by gel diffusion or electro-precipitin.^{1, 6, 11, 17, 22, 23, 25, 30, 31} A recent finding with fluorescent antibody technic shows that a third antigen is also present in thyroid colloid which is immunologically distinct from thyroglobulin.²

It is the purpose of this paper to describe a screen-

ing system for the detection of thyroglobulin antibodies and to report results of 692 random human serums screened by this method. Our original design was to develop a system based on small particles coated with antigen that could be utilized on a slide to detect the presence or absence of antibodies. Latex

Using a thyroid antibody screening test (TAST) consisting of thyroid antigen-coated Kaolin particles, 692 sera from hospitalized patients were screened. Of 85 giving positive reaction, there was a high per cent with thyroid abnormalities. Also important was the connection found with other types of auto-immune disorders.

particles,* red cell stroma, and Kaolin were utilized for this purpose. Kaolin proved to be superior and the method described utilizes Kaolin particles coated with thyroglobulin as a thyroid antibody screening

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* Supplied by Dow Chemical Co., Midland, Michigan.

test (TAST). A suspension of coated particles is stable and agglutination of the particles by positive serum is easily detectable, both macroscopically and microscopically, on a slide. Kaolin as a carrier of rat heart antigen for detection of rat anti-heart antibodies has been used successfully in our laboratories.⁷

Materials and Methods

Preparation of thyroid antigen. Thyroid antigen was prepared from fresh human thyroid removed at surgery. Loose connective tissue was removed, the gland minced with scissors, and extracted in saline over night in a ratio of tissue to saline of 1:6. One part aqueous merthiolate (1:1,000) was added to ten parts of antigen extract as a preservative. The antigen was tubed in separate test tubes in small quantities and frozen at -20°C . until needed.

Preparation of Kaolin particles. Kaolin particles (principally of aluminum silicate) are small with a negative charge. The ability of Kaolin to absorb protein is well recognized. It has been used to absorb gonadotropins from urine prior to their concentration. In general, the adherence of protein to particles is optimal near the protein's isoelectric point.²¹ The isoelectric point of thyroglobulin is 3.4. A phosphate buffer system of pH 5.5, prepared with 96 ml. of stock 0.15 M KH_2PO_4 and 4 ml. stock 0.15 M Na_2HOP_4 , permitted adequate coating of particles with thyroglobulin. At higher pH the thyroglobulin was poorly bound and readily leached off the particles. To 4.5 ml. of buffer was added 0.5 ml. of 20 per cent H_2O suspension of Kaolin (Merck, Colloid, N. F. Merck Co., Inc., Rathway, New Jersey, Chemical Division). Five ml. of recently thawed antigen was added to the buffered particles and the mixture allowed to stand in the refrigerator at 4°C . over night. The suspension was then centrifuged and the supernatant decanted. Particles were resuspended in 40 ml. buffer added in small amounts with agitation to encourage a homogeneous suspension. The final product was then filtered through a thin layer of cotton and 0.1 ml. of 30 per cent bovine albumin to 10 ml. of particles suspension was added. Antigen coated particles prepared with albumin have been found to be stable for over six months at refrigerator temperatures.

Procedure for slide test and gel plates. An agglutination slide with 12 depressions was used for the test. A drop of phosphate buffer was placed in each well, followed by one drop of the serum to be tested. One drop of particle suspension was also added. Three wells were reserved for control: (1) known positive serum; (2) known negative serum; and (3) buffer plus particles only. The slide was agitated on a Kline serologic shaker at 120 r.p.m. for five minutes and

examined microscopically. Agglutination was read 1 plus through 4 plus. Plus-minus reactions were recorded. Gel diffusion plates were prepared with one per cent Ionagar in petri dishes with 1:10,000 merthiolate as preservative. Central antigen wells were filled with recently thawed thyroid antigen and the surrounding wells were filled with patient's serum. Plates were kept at room temperature for 24 hours before being read. At 48 and 72 hours the plates were re-studied. The system was also evaluated with serum from three cases known to have Hashimoto's Disease and with serum from six rabbits immunized with human thyroid tissue. In this study, 692 sera submitted to the Hormone Laboratory for protein bound iodine (PBI) analysis were examined for anti-thyroid antibodies with TAST slide Kaolin agglutinating system described above, and the gel diffusion technic of Ouchterloney. Serums were collected and kept at 4°C . for not longer than one week before testing.

Results

On 692 sera screened by TAST 85 (12.2 per cent) gave a clear-cut positive reaction and 27 gave plus-minus reaction (*Table 1*). Only two sera gave a positive result by gel diffusion and these were from patients who later were shown to have Hashimoto's

TABLE 1
COMPARISON OF TAST AND GEL
DIFFUSION FOR DETECTION OF
ANTITHYROID ANTIBODIES

No.	TAST			Gel Diffusion	
	+	\pm	-	+	-
692	85	27	580	2	690
(%)	(12.2)	(3.9)	(84)	(0.29)	(99.7)

thyroiditis. The clinical records of 51 patients (Group I) with positive TAST laboratory test were examined for clinical diagnosis and associated laboratory abnormalities (*Table 2*). A control group (Group II) of 43 individuals with negative TAST (*Table 3*) were also investigated. Considerable overlapping of clinical disease is found in these two groups. However, the positive group (Group I) shows a higher incidence of disorders usually associated with protein abnormalities. The relationship between Group I and Group II to sex, thyroid disease and PBI value is seen in *Table 4*. Males and females were about equal in the two groups. In Group I the PBI values are shifted to lower levels of normal range ($4.8\text{ }\mu\text{g}/100\text{ ml.}$) with 12 of 51 (23.6 per cent) below nor-

TABLE 2
CLINICAL FINDINGS IN PATIENTS WITH POSITIVE TAST

<i>No.</i>	<i>Age</i>	<i>Sex</i>	<i>PBI</i>	<i>Diagnosis</i>
1.	30	F	6.0	Pelvic inflammation.
2.	45	F	4.8	Colloid goiter.
3.	61	F	THTR*	Myocardial ischemia.
4.	36	F	(BEI 0.5)	Hypothyroidism.
5.	50	F	8.0	Asthenia, hypergammaglobulinemia.
6.	20	F	1.7 (BEI 1.6)	Hypothyroidism, recurrent, nodular goiter.
7.	50	F	6.0	Endometriosis.
8.	61	F	4.7	Irritable colon.
9.	48	F	2.8	Myxedema.
10.	49	F	—	Neurocirculatory asthenia.
11.	64	M	4.5	Hypothyroidism, osteoarthritis.
12.	39	M	7.1	Duodenal ulcer.
13.	41	M	3.6	Duodenal ulcer, psychoneurosis, anxiety type.
14.	32	F	4.4	Depression, hypothyroidism.
15.	77	F	4.3	Hypertension.
16.	56	M	4.9	Myocardial ischemia.
17.	36	M	2.4	Hashimoto's Disease, follicular adenocarcinoma.
18.	55	M	5.2 (BMR-25)	Probable hypothyroidism.
19.	39	M	5.4	Male climateric.
20.	76	F	6.4	Irritable colon.
21.	38	F	6.8	Hoarseness and dysphagia.
22.	54	F	5.0	Anxiety reaction.
23.	30	F	7.1	Hypertension.
24.	52	M	5.8	Colitis.
25.	60	F	1.7	Myxedema (Pos. VDRL).
26.	33	F	3.9	Diffuse hypertrophic goiter.
27.	49	F	6.8	Hydronephrosis.
28.	79	M	3.7	Diverticulosis.
29.	50	M	4.1	Duodenal ulcer.
30.	54	F	8.2	Endometriosis.
31.	32	F	7.3	Narcolepsy.
32.	37	F	7.4 (BEI 4.9)	Cerebral abnormality.
33.	66	M	6.9	Osteoarthritis.
34.	36	F	5.1	Hypothyroidism.
35.	44	F	THTR	External otitis.
36.	43	F	5.2	Intra-abdominal mass.
37.	29	M	3.8	Myalgia, chest wall, anterior.
38.	37	F	5.8	Cellulitis (Pos. VDRL).
39.	13	F	5.7	Hypothyroidism.
40.	63	F	5.9	Essential hypertension.
41.	53	F	8.5	Diabetis mellitus.
42.	13	M	1.2	Juvenile myxedema.
43.	40	M	7.4	Reactive depression.
44.	16	F	9.3	Ulcerative colitis.
45.	29	F	6.4	Cervicitis.
46.	55	F	6.1	Rheumatoid arthritis.
47.	69	M	6.3	Cerebral arteriosclerosis.
48.	5	F	7.0	Plexiform neuroma, cervical area, right.
49.	47	F	5.5	Irritable colon.
50.	34	F	1.8	Cystic cervicitis.
51.	18	F	3.5	Malnutrition.

* THTR—Too high to read—contaminated with excess iodine.

TABLE 3
CLINICAL FINDINGS IN PATIENTS WITH NEGATIVE TAST

<i>No.</i>	<i>Age</i>	<i>Sex</i>	<i>PBI</i>	<i>Diagnosis</i>
1.	50	F	4.3	Peridontoclasia.
2.	40	F	5.9	Acne vulgaris.
3.	62	M	7.5	Essential hypertension.
4.	22	F	3.7 (BEI 3.1)	Hypothyroidism.
5.	26	F	5.9	Incomplete spontaneous abortion.
6.	14	F	4.9	Pyelitis.
7.	13	M	6.8	Intercostal neuralgia.
8.	27	F	5.2	Menorrhagia.
9.	47	M	8.9 (BEI 2.8)	Hypothyroidism.
10.	50	M	3.5 (BEI 0.9)	Myxedema.
11.	21	F	6.0	Functional uterine bleeding.
12.	53	F	5.6	Subacute colitis.
13.	35	F	3.7	Recto-vaginal abscess, hypothyroidism.
14.	26	F	5.3	Endometrial hyperplasia.
15.	51	F	4.3	Biliary dyskinesia.
16.	37	M	6.1	Anxiety reaction.
17.	40	F	7.8	Cholelithiasis.
18.	26	F	6.9	Anxiety, hysteria.
19.	45	M	8.2 (BMR 61)	Hyperthyroidism.
20.	59	F	8.4	Essential hypertension.
21.	35	F	8.1	Menorrhagia.
22.	49	M	4.5	Diabetes mellitus.
23.	49	F	(BEI 4.0)	Diabetes mellitus.
24.	12	M	7.3	Anxiety state.
25.	28	F	8.7	Pregnancy.
26.	32	F	4.7	Chronic constipation.
27.	66	F	6.2	Osteoarthritis.
28.	65	F	4.7	Introspective neurosis.
29.	7	M	16.2	Migraine.
30.	25	F	7.7	Irritable colon.
31.	47	F	6.0	Ulcerative endocarditis.
32.	59	F	3.6	Rheumatoid arthritis.
33.	19	F	14.0	Pregnancy.
34.	64	M	6.6	Hiatal hernia.
35.	59	F	9.1	Arteriosclerotic heart disease.
36.	13	F	6.2	Uterine bleeding, functional.
37.	35	F	5.8	Menometrorrhagia.
38.	34	F	4.9	Neurasthenia.
39.	32	F	6.0	Cystitis.
40.	29	F	6.3	Menorrhagia.
41.	32	F	6.5	Hypochromic anemia.
42.	32	F	5.6	Endometriosis.
43.	59	F	4.6	Diabetes mellitus.

mal. Of the 12 with low PBI values, six (50 per cent) had thyroid disorders.

Thyroid gland disease in Groups I and II were compared (*Table 5*). In general, the patients with positive tests had a high incident of thyroid disturbance and also diseases usually associated with dysproteinemia.

A quantitative adaptation of the test was valuable in determining relative titers. Serial dilutions of the serum were made and the various dilutions tested against antigen as previously described. Titers as high as 1:36,000 were demonstrated although most positives were on the order of 1:64 and 1:512.

TABLE 4
RELATIONSHIP OF REACTION OF TAST TO
PBI AND THYROID DISEASE

Reaction TAST	No.	F*	M*	PBI Values† CASES WITH VALUES:		
				LESS THAN 4	GREATER THAN 8	Thyroid Disease
Group I (Positive)	51	36	15	12	3	16
Group II (Negative)	43	33	10	4	8	5

* Sex, Female and Male.
† Normal 4-8 µg/100 ml. Average for Group I 5.2, for Group II 6.4.

Discussion

The finding of thyroid antibodies in a significant number of patients with no clinical thyroid disease^{11, 13} and the reported failure to reproduce thyroiditis in the rabbit by auto-immunization by Shepard *et al.*,³⁰ suggest that thyroid antibodies are not primarily responsible for thyroiditis and may not damage the thyroid gland. On the other hand, Rose *et al.*,²⁷ Witebsky *et al.*,³¹ and Porter *et al.*²³ produced thyroiditis in rabbits consistently by auto-immunization. Pulvertaft,²⁴ demonstrated that serum from patients with Hashimoto's Disease is cytotoxic to human thyroid tissue culture cells. The passive transfer of antibody from mother to fetus has been associated with cretinism in the offspring,³ but in certain cases in which both mother and baby had thyroid antibody in the serum the baby was normal. Passive transfer of Hashimoto serum to a monkey²⁶ and a human subject¹⁵ had no effect on the thyroid tissue of the recipients. Porter *et al.*²³ was unable to find correlation between the degree of thyroid destruction and titer of circulating antithyroid antibodies. It is probable that injury to the gland is necessary for satisfactory production of experimental thyroiditis. Roitt *et al.*²⁶ have shown that radiation damage to the thyroid of the rat followed by passive transfer of antithyroid antibodies produces thyroiditis. Also, if Freund's adjuvant is injected instead of antithyroid antibodies a detectable thyroiditis develops, suggesting auto-immunization.

It is generally assumed that thyroglobulin is isolated from the general circulation so that auto-sensitization, or the development of tolerance in fetal life, does not occur.²⁸ Subsequent injury to the gland is believed to initiate release of sufficient anti-

genic materials for auto-immunization. Return of the antibodies to the thyroid may then give rise to damage, causing further release of antigenic material and, consequently, a vicious cycle which results in continuing destruction of the thyroid gland. However, an alternate view is emerging as an explanation.^{5, 12, 18} Under the newer concept, auto-antibodies are occurring naturally; that is, they are normally present in minute amount and may play an important role in wound healing, and so forth. In a number of instances the production of auto-antibodies is excessive and goes beyond the required range causing damage to one or more organs. This latter view is more consistent with the tendency of familial occurrence of auto-thyroid antibodies¹³ and the now well recognized coexistence of auto-antibodies to other organs. Anti-thyroid antibodies and a variety of antitissue antibodies have been described in many conditions including cirrhosis,¹⁹ lupus erythematosus,¹⁸ rheumatoid arthritis,¹⁴ lupoid hepatitis,⁶ pancreatitis,²⁰ pernicious anemia,^{10, 16} and auto-immune hemolytic anemia⁶ which imply that possibly all of these tissues either contain an antigen which is uniformly present in all body tissues or that there is a basic defect in the mechanism governing the production of auto-antibodies.^{5, 12, 18} In a number of cases of cirrhosis, concurrent thyroiditis has been described.^{11, 19} Goudie *et al.*¹¹ also noted that older females had complement-fixing antibodies to thyroid significantly more frequently than males and, histologically, thyroiditis was more frequent in the glands of elderly females, especially in those with liver disease. Auto-antibodies to thyroid and to gastric mucosa in cases of pernicious anemia have been studied extensively.^{10, 16} Studies of the patients in this report indicate the presence of thyroid antibodies or antibodies capable of agglutinat-

TABLE 5
THYROID AND AUTOIMMUNE DISEASES
IN PATIENTS WITH POSITIVE OR
NEGATIVE TAST

Diseases Test	Group (Pos. TAST)	Group II (Neg. TAST)
Myxedema	3	1
Hypothyroidism	6	3
Hyperthyroidism	0	1
Goiter	3	0
Hashimoto's Disease with adenocarcinoma	1	0
Colitis	3	0
Rheumatoid arthritis	1	1
Osteoarthritis	3	1
Duodenal ulcer	3	0

ing particles coated with thyroglobulin in conditions other than thyroiditis (*Table 5*).

Of the various serologic tests utilized for detection of thyroid antibodies, gel diffusion technic (*Table 1*) is perhaps the least sensitive and the agglutinating system the most sensitive. The tanned red cell agglutination (TRA) procedure is perhaps the single most reliable and sensitive test for antithyroid antibodies.⁶ Comparative studies between TRA and latex agglutination by Senhauser *et al.*²⁹ adds confirmation to the well established concept that passive hemagglutination technics in general are perhaps the most sensitive methods available in immunology.⁴ The method until recently, however, has not been applicable to the clinical laboratory. Even though TAST is satisfactory for rapid screening a more refined approach for more precise serologic results could be determined with the TRA test.

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Pulmonary Distress Syndrome

Fetal Lung Changes With Maternal Stress

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LIEBERMAN HAS PRESENTED "the unified theory" to explain hyaline membrane disease. Three distinct entities have been implicated, and the extent of the pathologic changes in newborn lungs has been attributed to each of these processes to some degree.⁸ It has been stated that in order to encompass the many facets of hyaline membrane disease, one must consider the total spectrum of lung diseases from the respiratory distress syndrome of the newborn to hyaline membrane formation in the lungs of patients dying with uremia or pneumonia. The three etiologic factors contributing to this disease state are:

1. Exudate in the alveolar spaces implicating the pulmonary capillaries.

2. Atelectasis related to a deficiency in "Surface Tension Lowering" (STL) substance.

3. Fibrinolysis suppression characterized by the presence of an abnormal concentration of inhibitor of the plasminogen activator system.

Gitlin and Craig with their fluorescent antibody studies, and van Breeman, Neustein and Bruns using the electron microscope, were able to prove conclusively that hyaline membranes are composed largely of fibrin.^{5, 12} Since the amniotic fluid has a very low concentration of fibrinogen, mere aspiration by the fetus of amniotic fluid cannot implicate this fluid in the development of the hyaline membrane. In addition, it has been demonstrated by many investigators that pulmonary edema fluid does not contain fibrinogen except in inflammatory states, and left-sided failure of the fetal or newborn heart, although instrumental in the production of pulmonary edema, cannot be considered seriously as a cause of hyaline membrane formation.⁴ The fact that fibrinogen is present in the alveolar spaces forces the conclusion that the pulmonary capillaries are functioning under abnormal conditions allowing plasma macromolecules,

including fibrinogen, to pass through their walls. The pulmonary transudate present as a normal phenomenon of intrauterine life and as a physiologic feature in the changeover from fetal to adult circula-

Pulmonary distress syndrome of the newborn, including hyaline membrane disease, appears to result from intra-uterine stress involving the pulmonary capillaries.

The alveolar exudate interferes with gas exchange as the transudate fraction is re-absorbed after birth, and a membrane is laid down.

"Surface Tension Lowering" substance deficiency as well as the presence of inhibitor to the fibrinolytic system, also, has been incriminated in this disease complex.

tion now contains oncotic fractions, and what was transudate is now exudate containing, among other abnormal constituents, fibrinogen.^{1, 10}

Another entirely different approach to this abnormal state, namely exudate in the alveolar spaces, is the presence of a "Surface Tension Lowering" (STL) substance as described by Avery.² Prematures weighing less than 1,200 gm. at birth do not have this lipoprotein in their lungs, yet it is found in term stillborn and liveborn infants. In pulmonary disease states in which atelectasis is usually a contributing feature, low STL was found, but in the normal-appearing areas of the same lungs, STL was present in the usual amount. It has been suggested^{3, 9} that other lipoproteins coming from the mitochondria of the cuboidal epithelium lining the alveolar sacs interfere with STL under abnormal conditions. Other interfering substances, of course, could come from the plasma of the pulmonary capillaries and the aspirated amniotic fluid, itself.

Once the alveolar fibrinogen has been converted to fibrin, the clot forms and attention is directed to the

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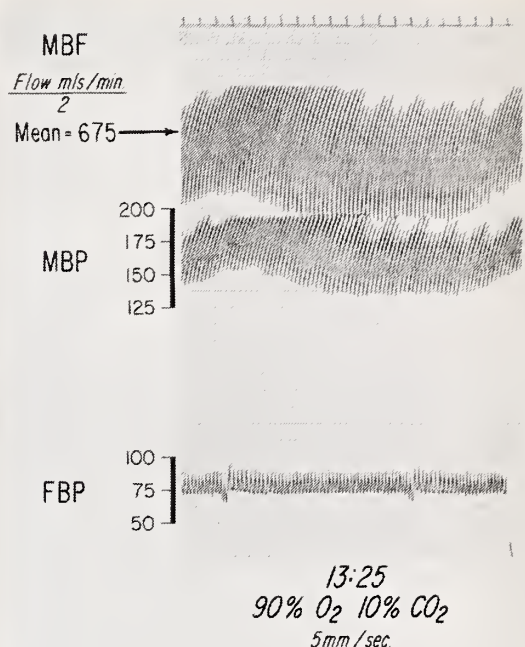
fibrinolysis system. It has been demonstrated by Lieberman¹¹ that in newborns with hyaline membrane disease, there is a decrease of fibrinolytic activity due to inhibition of the plasminogen activator. It has been suggested that the placenta is a locus of this inhibitor, and because of abnormal intrauterine conditions, this inhibitor may be released, which prevents fibrinolytic activity from removing the clots formed in the alveolar exudate.

Materials and Methods

The three unrelated processes suspected as etiologic agents in the production of the respiratory distress syndrome, if not hyaline membrane disease itself, do not appear to unify the understanding of this peculiar lung lesion in the newborn. Since we are engaged in studying maternal-fetal relationships in sheep, we directed our attention to the development of a discernible lung lesion in severely stressed fetal lambs as an adjunct to our other experiments.

Forty pregnant Western ewes at term were anesthetized by continuous spinal anesthesia (20 mg. Tetracaine HCl). A tracheotomy was performed under local anesthesia and a Bennett PR-2 Respirator Unit was used to control respiration and to deliver gases of varying concentration. Succinylcholine (anectine) was employed in several instances to minimize the respiratory struggle.

A PE 205 catheter was inserted in the ewe's femoral artery and vein and the arterial catheter was advanced to the thoracic aorta. A previously calibrated electromagnetic 3 mm. flow probe was applied to the uterine artery through a retroperitoneal flank dissection. A distal constrictor of polyethylene catheter material was applied loosely about this artery and was utilized in obtaining zero flow determinations and recorder calibrations. A paramedian abdominal incision was made and a PE 190 catheter was inserted into the fetal femoral artery after the lower extremity had been delivered through a small marsupialized window in the uterus. The extremity, with the catheter in place, was replaced in its fetal position within the uterus. The catheters were then connected to nonexpansile tubing, which in turn were connected through a Farnsworth manifold to Statham P₂₃ Db strain gauges. The electromagnetic flow probes were connected to a Medequipment Flow Meter Model M-1. All recordings were made on an Offner Type R Dynograph Recorder. Baseline levels of blood pressure, heart rate, and blood Po₂, Pco₂ and pH, as well as plasma Na and K concentrations, and osmolalities were determined. The identical fetal metabolites were sampled simultaneously and recorded. The uterine arteries were given an adequate opportunity to recover from the initial spasm associated with the ap-



1/14/64, Exp 8
 Sheep no. 27, twins
 Probe-3A, Gain-100
 St. Def-28, Amp-09
 mm Def. \neq 7.5 ml/min.

M ₄	F ₄
pO ₂ - 68	pO ₂ - 30
pCO ₂ - 35.0	pCO ₂ - 35.3
pH - 7.27	pH - 6.95

Figure 1. This multiple tracing, taken after the ewe had been breathing a 10 per cent CO₂ mixture for five minutes, shows a healthy uterine blood flow, a high MBP and normal FBP. The pH of the ewe has fallen, but the fetal pH is severely depressed. The tops of the recording are square because the wide excursions of the recording pens exceed their travel during the CO₂ inhalation.

plication of the flow probes before baseline flow measurements were recorded.

Several stress procedures were instituted. Gas mixtures containing 10 per cent CO₂, 100 per cent oxygen (Figure 1), and heavy thiopental anesthesia were used. Values before and after gas changes were determined. Anoxic states were achieved by evidence of Po₂ lowering in the fetus from the usual femoral artery Po₂ of 18 to 20 mm. Hg to values of 5 to 10 mm. Hg (Figure 2). The pH was also lowered from 7.30 to 6.90 Sorensen units, which occurred during Pco₂ inhalation. These values frequently were reversible after the stress was removed, although there usually was a differential of several mm. of Hg or tenths of a Sorensen unit from the original baseline subsequently.

All 25 lambs were delivered by cesarean section after an experimental period of at least three hours. There were 18 sets of twins and seven singlets.

Only one of a set of twins was sampled, the twin

to which the catheters had been initially applied. Pharyngeal aspiration was performed at birth on all lambs, and most were seen to gasp. Several breathed sporadically but no attempt was made to counteract the effect of the thiopental. A few had mouth-to-mouth breathing; *Figure 3* illustrates the possible danger inherent in such activity. None of the lambs breathed normally, and none recovered enough to attempt to stand, which was in stark contrast to other experiments where only spinal anesthesia was employed. When conduction anesthesia was used, plus similar stress procedures, the majority of the lambs breathed, attempted to stand and walk, and several actually were raised as pets.

The lungs of 25 lambs were removed one hour after delivery and sections were placed in formalin

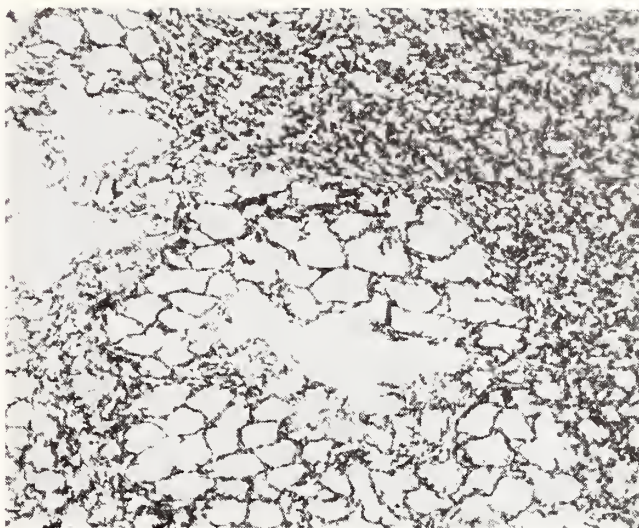


Figure 3. Mouth-to-mouth breathing gently performed in a heavily narcotized lamb at birth was associated with "traumatic emphysema." These dilated and ruptured alveolar sacs resulted from this "innocuous" procedure.

phologically with the disturbed intrauterine physiology.

Results

All the lungs were abnormal. The most significant finding was the presence of red cells and exudate in the alveolar spaces (*Figure 4*). The alveolar walls were intact throughout but on close inspection of the nuclei within the walls, fragmentation and clumping of the chromatin material seemed to have taken

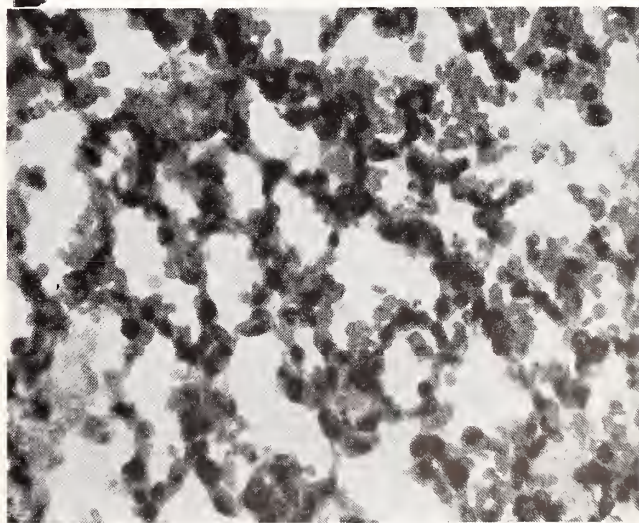
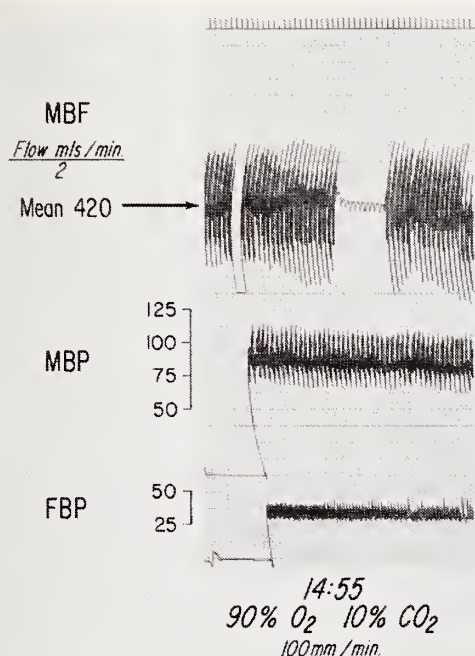


Figure 4. The lamb lung after the ewe had been subjected to severe stress shows the presence of red blood cells and exudate indicating the loss of selective permeability in the pulmonary capillaries. After birth these lambs did not breathe to any significant degree, and the exudate formed during the intrauterine period is unchanged ($\times 400$).



1/8/64, Exp. 7
Sheep no. 92, Twins
Probe-3A, Gain-100
St. Def.-28, Amp-09
mm Def. \neq 75 ml/min.

M_4	F_4
pO_2 - 200	pO_2 - 15
pCO_2 - 204	pCO_2 - 800
pH - 7.09	pH - 6.80

Figure 2. This multiple tracing is the response observed during thiopental anesthesia (2.0 gm.). The 10 per cent CO_2 inhalation has been given to the ewe for 30 minutes. The uterine blood flow has fallen considerably and the FBP is greatly depressed. Both pHs are severely depressed. The ewe is placid because of the thiopental anesthesia.

for 24 hours. H&E preparations were made in the usual fashion, utilizing the techniques common to most pathology laboratories. These slides were then studied for information that could correlate mor-

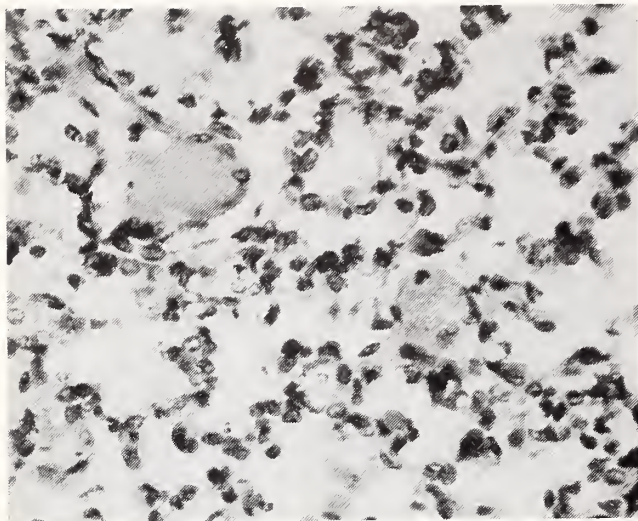


Figure 5. This photomicrograph of the lamb lung shows the exudate formed in the alveolar spaces. This ewe was previously fed, and during the experiment vomited and aspirated repeatedly. The intrauterine fetus was subjected to anoxemia for prolonged periods. The lamb was born alive but died shortly after. The onset of respiration did not occur although several gasps were seen.

place. The exudate was obvious and this pathologic state was observed best in a ewe fed prior to surgery (Figure 5). The contents of the stomach were vomited and aspiration took place through the tracheotomy. The blood gases in the fetus were severely depressed except for P_{CO_2} , which climbed to 75 mm. Hg. The pH of the maternal as well as the fetal blood fell below 7 Sorensen units. This fetus was delivered alive but died very shortly after birth. The fetal heart rate was greatly depressed at delivery, unlike the normal heart rates of most of the other lambs.

Discussion

Although three hypotheses have been advanced to explain the respiratory distress syndrome and hyaline membrane disease in particular, the experimental proof of STL substance as advanced by Avery and fibrinolytic activity as proposed by Lieberman leaves much to be desired. It is evident that under stress conditions the pulmonary capillaries of the fetal lamb permit the passage of macromolecules, including fibrinogen, into the alveolar spaces. A wide spectrum of possibilities can now be entertained. Clot formation takes place and a fibrin mat is deposited. As the lungs become completely or partially functional, the pulmonary edema, according to Starling's principles, is pulled back into the vascular tree by oncotic pressure in the plasma. The larger molecules, however, are retained by the selectivity of the recovered capillaries and form the hyaline membrane along the

alveolar walls. Should a strong fibrinolytic system be present, the membrane would not form or could be lysed once having appeared. Atelectasis would take place if the STL substance were absent or inhibited by the activity of other lipoproteins coming from the lining cells of alveolar walls, as expressed by Stahlman.¹¹ The fibrinolytic enzyme system can be suppressed by a specific inhibitor. The nature of this inhibitor is still vague but Holemans uses inhibitor in testing for fibrinolysis activity, the exact composition of which has not been determined.⁶ However, there is evidence that the fibrinolytic activity is enhanced in stress conditions,⁷ but the apparent lack of this activity in hyaline membrane disease suggests that either the inhibitor must be predominant or that fibrinolytic activity is not a principal feature of respiratory disease states.

In the final consideration, we feel that the newborn respiratory distress syndrome is a stress phenomenon, primarily concerned with exudate and clot formation in the alveolar spaces. The clinical implications that can be extrapolated from this presentation center about those intrapartum states in which stress is applied to the intrauterine fetus, which in turn is unable to cope with the situation.

The authors thank Margaret B. Scales, M.D. for her evaluation of the lungs and the interpretations of the slides.

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Service Anonymous

Service Program of the American Cancer Society

MARJORIE C. DRAKE, Topeka

IN THE STATE of Kansas there is a quiet group of volunteers who are deeply concerned about cancer patients and their families. This concern expresses itself through traditional neighborly help and in guiding patients and their families to existing community resources and facilities. They are interested in helping the physician in his care of the cancer patient and they need the physician's awareness of their availability.

The Service program of each local county unit of the Kansas Division, American Cancer Society, consists of information and counseling; loan and gift services; transportation; dressings; home visitors; rehabilitation aids; and the securing of blood donors. By its very nature, cancer creates physical, social, and economic problems for patients and their families; and the American Cancer Society is recognized as a resource in the community where these people can obtain personal help and guidance in meeting the serious problems which arise.

By utilizing the knowledge and skills of volunteers, the American Cancer Society (ACS) demonstrates in multiple ways that there are many who care for the cancer patient and his family. Expenditures of American Cancer Society funds for services must be carefully controlled, but the possibilities of personal service are limitless, depending on the ingenuity and resourcefulness of the Service volunteers.

During the past twelve months the Service volunteers in Kansas have made and distributed over 680,000 dressings and over 16,000 bedsavers. These items were provided to 968 patients. The dressings are given to a patient only with the approval of the attending physician. The dressings are made from gauze and cellucotton purchased by the ACS and the bedsavers are made by using old, clean cloths, plastic materials, newspapers, and new cellucotton. Groups of volunteers, such as home demonstration units, hospital auxiliaries, church auxiliaries, women's civic clubs, meet regularly and make and package the dressings and bedsavers.

The majority of the cancer patients using our dressings are persons who, for monetary reasons, would have deemed it mandatory to make the dressings themselves after they left the hospital, or members of their families would have felt they had to

make the dressings needed by the patient. It is a burdensome task for any one family to keep enough materials on hand and to find enough time to make the number of dressings required.

In order to have full assurance that the needs of cancer patients and their families are met in the community, every effort is being made to inform the communities of Kansas about the American Cancer Society's Service Program and we hope to succeed in our effort to inform every member of the medical profession, for it is they who provide direct care for the cancer patient. Will you help us?

Our dressings groups make the following size dressings which are given to cancer patients without charge: 4" x 4", 3" x 10" VP, 8" x 8" ABD, 8" x 10" ABD, 16" x 20" bedsaver. Special sizes are made at the physician's request. These dressings are not sterile and we must have the permission of the physician before we can supply them to the patient. Dressings may be used at the hospital, in nursing homes, and in the patient's home. We find that most hospitals are glad to sterilize dressings for the patient's use while in the hospital and instructions are given for the proper sterilization of dressings when used at home or in nursing homes.

We have a loan closet in a majority of our county units consisting of hospital beds, mattresses, bedrails, wheelchairs, bedside tables, urinals, bedpans and other equipment. These articles are loaned, free of charge, to cancer patients who request them and with the approval of their physicians. How much easier it is for a patient to rest in a hospital bed that can be adjusted and how much easier it is for a member of the family to care for a patient who is using such a bed. How convenient to have the use of a wheelchair and thus be able to encourage the patient to leave his bed, as the doctor has ordered, and move him out of the sickroom for a while. Certainly the

convenience of the other items, in the care of a patient in his home, speaks for itself. If the patient who is in modest or moderate circumstances had to purchase or rent such equipment, the cost would become prohibitive. Thus, we are relieving a physical and financial burden when we loan equipment as listed.

From our gift closet we give hospital-type gowns, bed slippers, comfort pillows, chair caddies, lap robes—the small colorful items to brighten up the patient's convalescence or his remaining weeks and months.

We have Home Visitors in some of our units. They are carefully selected and screened for reliability and emotional stability. Many of these visitors are former cancer patients who have recovered and are leading normal lives. They fully understand most of the patient's fears and worries and can do much to reassure him. They are alert to the needs of the patient and to the needs of the family. Perhaps the person responsible for the care of the cancer patient needs to get away at least one afternoon each week and the home visitor can "patient-sit" during this time while visiting with the patient.

In cases where relatives or friends cannot provide transportation for a patient to and from the doctor's office or hospital for treatment, our Service volunteers will try to arrange for qualified transportation.

Rehabilitation of the cancer patient, particularly the laryngectomy, continues to be an important part of the Service program. Hundreds of booklets have been distributed to those concerned with the care, treatment and safety of these persons. Speech therapy is arranged for some of the laryngectomees and all are encouraged to affiliate with a "New Voice" club.

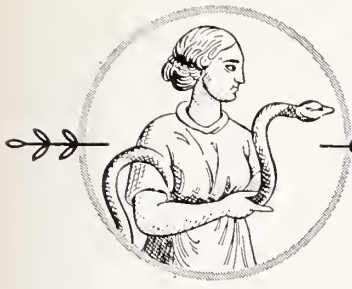
To illustrate what we can and have done for cancer patients, I am thinking of a case in central Kansas—a most dramatic case, but one which graphically points out *all* that can be done for a family. A young woman with a family—husband and four children, the oldest in high school and the youngest just over 12 months old—had a uterine cancer. Her physician was aware of the Service program of the ACS and referred his patient and her family to the unit in her town. Quietly, but efficiently, the Service volunteers marshalled the existing community resources and, acting as the "catalyst" in this instance, they relieved the mother's worry by taking care of her immediate needs and those of her family.

As the town was small and the hospital small, there was a lack of nurses; so, with the doctor's consent, nursing care was provided by qualified volunteers at the hospital at the times directed by the doctor. The baby was cared for during the day time by volunteers; neighbors assisted in keeping the house neat and the family's clothes in order, and at the same time gave the oldest girl homemaking instructions the mother had not been well enough to impart. Various church and civic organizations took turns furnishing one hot meal each day, delivered to the home and served by the oldest girl. They arranged proper contact with the husband on his job in order to keep him working productively; they had a grocery shower in order to replenish the pantry. A clothing shower was given for the children as opening of school neared and arrangements were made for enrolling the three older children in school. Transportation was arranged when the family needed to visit the mother, and blood donors were secured as needed. All of these services were provided at no cost to the patient and her family.

The husband of the patient tells us that except for the considerate, compassionate assistance given him by the local Service volunteers of the ACS he would have had to take leave from his job in order to attempt to keep his family together and would have had to go on welfare in order to meet the daily needs of his children. We were able to assist in a friendly and constructive way, by involving his neighbors, his church, and fraternal associations. They, in turn, felt they were only repaying some of the past kindnesses and cooperation shown by him and his family. Not only were we able to help with the baby, but the volunteers saw that the family was properly nourished and clothed and that the father was able to remain on his job with a minimum of worry during this trying period.

A volunteer deeply believes that he is a part of the community and should contribute freely to make it a better place in which to live. A volunteer is not paid in money. The only thing he receives is the personal satisfaction of seeing his community advance and his neighbors cared for in time of need. The advancement of mankind has partially been through the unselfish work and giving of the volunteer. Service volunteers of the American Cancer Society are primarily interested in caring for cancer patients and their families.

This year marks the 25th or Silver Anniversary of U. S. Savings Bonds. The first Series E Bond was sold to President Franklin D. Roosevelt on May 1, 1941.



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D.,* *Kansas City, Kansas*

Preface

WHEN I WAS ASKED to write a history of the Medical School of the University of Kansas, I demurred on the ground that I was not a professional historian. Also, I felt that no one can write an objective history of an institution with which he has been connected for 40 years. When the request was rephrased and I was asked to write an anecdotal history, I weakened; and, when it was again proposed that I write an account of my experiences in the Medical School, I finally yielded.

If this account seems too autobiographical, I invoke the excuse that an account of one's experiences is bound to be autobiographical. I have studiously avoided trends, backgrounds, judgment of policies, and evaluation of events and policies since I am neither a Gibbon nor a Toynbee. This is strictly an account of conditions as they appeared to me, the impressions that the principal actors in the drama made upon me. Another observer could have seen the events and the men whom I describe, and have painted an utterly different picture. I have tried to describe events as they happened, but, since my statements are based on memory—that treacherous resource—some of them may be inaccurate.

I am very much indebted to Dr. Robert Schauffler, to Dr. George H. Hoxie, and to Dr. O. O. Stoland for information regarding the earliest history of the Medical School. I also appreciate very much the suggestions of Dr. H. R. Wahl, Dr. T. G. Orr, and Dr. E. H. Hashinger, who had the hardihood to wade

through the rough draft of this account and who made many excellent suggestions.

Many years ago, a great French physician, Jean

Several years ago Dr. Major wrote an account of the early days of the University of Kansas School of Medicine, based in a large measure on his personal experiences there, and his intimate acquaintance with the various people who were instrumental in the development of KUMC as we know it today. Obviously filled with interesting experiences, this is an authentic history of the school, and the *Journal* is pleased to present this document to the members of the Society. This is the first of the approximately twelve installments in which it will be published.—Editor

Astruc, who loved Montpellier devotedly, wrote his *Mémoires Pour Servir à L'histoire de la Faculté de Médecine de Montpellier*, with the hope that it would be source material for a future historian to write an exhaustive history of Montpellier. This history was never written. Possibly Kansas may be more fortunate, and my notes may serve as memoirs for a future historian who wishes to write an exhaustive history of the Medical School of the University of Kansas.

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The Dark Ages

Fourteen years after the foundation of the University of Kansas on Mount Oread, the Regents of the University instituted a premedical course there. This course, first offered in 1880, announced a curriculum which included chemistry, physiology, comparative anatomy, botany, toxicology, and materia medica. Students completing this course were admitted to the second year of the three-year medical course at Ohio Medical College of Cincinnati and Rush Medical College of Chicago. A notation in the Kansas University catalogue of 1883 states that "the course was accepted by all leading medical colleges of the West."

In 1899, the University of Kansas itself established a two-year course in medicine. This course included anatomy, chemistry, materia medica, pharmacy, physiology, embryology, bacteriology, toxicology, medical jurisprudence, and psychology. In 1905, a four-year medical school, with clinical years at Rosedale and Kansas City, Kansas, was established. Dr. Simeon B. Bell assured the location of the clinical years at Rosedale by a gift to the University of seven and one-half acres of land in Rosedale and \$45,000 in cash. With the cash, the original hospital building, named in his wife's honor, The Eleanor Taylor-Bell Memorial Hospital (*Figure 1*), and the laboratory building were constructed at a cost of \$25,000 and \$20,000 respectively. In 1911, the state appropriated \$50,000 to build an additional hospital building. A Training School for Nurses was established in July, 1906, at the opening of the Bell Memorial Hospital.

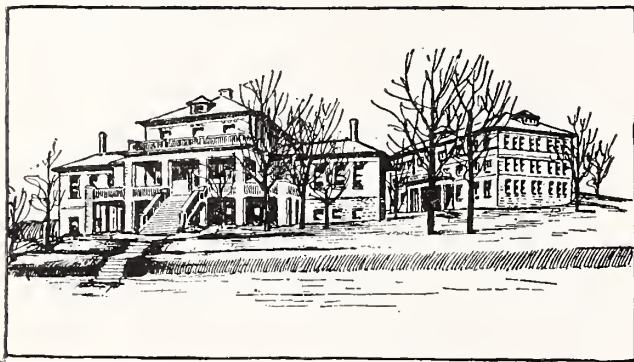


Figure 1. Bell Memorial Hospital in 1914.

The establishment of the clinical years in Rosedale did not happen overnight but was the result of long and patient negotiation. When young Bob Schauffler returned to Kansas City in 1898, after graduation at the New York College of Physicians and Surgeons and a two-year internship in the New York Hospital, he joined the faculty of the Kansas City Medical College, founded in 1868, as an orthopedic surgeon. Dr.

Schauffler's father, Dr. Edward W. Schauffler, was president of the college, and Dr. Franklin E. Murphy, secretary. Not long thereafter, Dr. Murphy resigned to go abroad, and Dr. Bob Schauffler was chosen to take his place.

At that time, there were three medical colleges in Kansas City, Missouri—the Kansas City Medical College, the University Medical College, and the Medico-Chirurgical College. As a result of his experience in the East, young Schauffler was convinced that proprietary medical colleges, to which class the three belonged, would soon be a thing of the past and that a medical college must be an integral part of a university. Finding that many other physicians shared this point of view, a determined attempt was made to move the clinical years of the University of Missouri School of Medicine from Columbia to Kansas City and to take over the three medical schools. The attempt failed, as Dr. Schauffler remarked, "Just as later attempts over a period of 50 years have failed."

The group then turned to the University of Kansas. Active in this movement, in addition to Dr. Schauffler, were Dr. Edward Bartow, associate professor of chemistry at the University of Kansas, who taught chemistry in the Kansas City Medical College, and Dr. George M. Gray, a professor at the Kansas City Medical College. Dr. Gray had served an apprenticeship in the office of Dr. Schauffler, Sr., where he was particularly intrigued in studying various specimens under Dr. Schauffler's microscope, a rather rare instrument in a doctor's office in those days.

Negotiations with Chancellor Strong of Kansas University proved fruitful, and the Kansas City Medical College and the Medico-Chirurgical College of Kansas City, Missouri, with the College of Physicians and Surgeons of Kansas City, Kansas, expressed their desire to unite in one school to form the clinical department of the University of Kansas School of Medicine. The gift of Dr. Bell made this project a reality.

When the clinical years were established in Rosedale, the Medical School acquired two men of national and international reputation. The professor of surgery was Dr. John F. Binnie (*Figure 2*), a graduate of the University of Scotland, Aberdeen, who had located in Kansas City. He was a scholar and deep student of surgery, and his writings, in a sense, put Kansas City on the map of surgical literature. His little handbook, *Manual of Operative Surgery*, was a standard text, and I think almost every member of my class in medical school had a copy of it. The second man of renown was Marshall A. Barber (*Figure 3*), professor of bacteriology, who had devised a capillary pipette with which he isolated a single bacterium. By this method, he had shown that

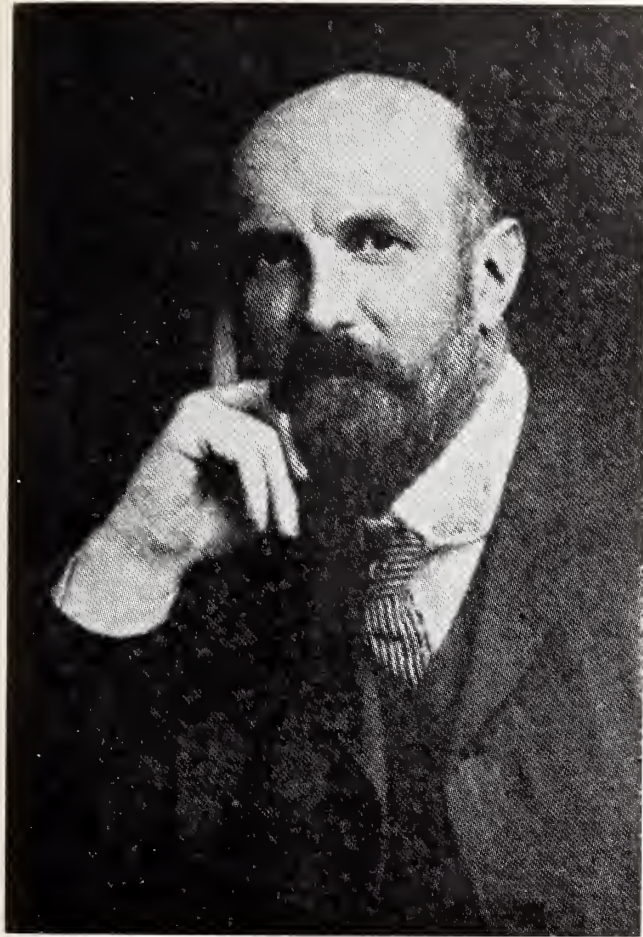


Figure 2. John Fairbairn Binnie.

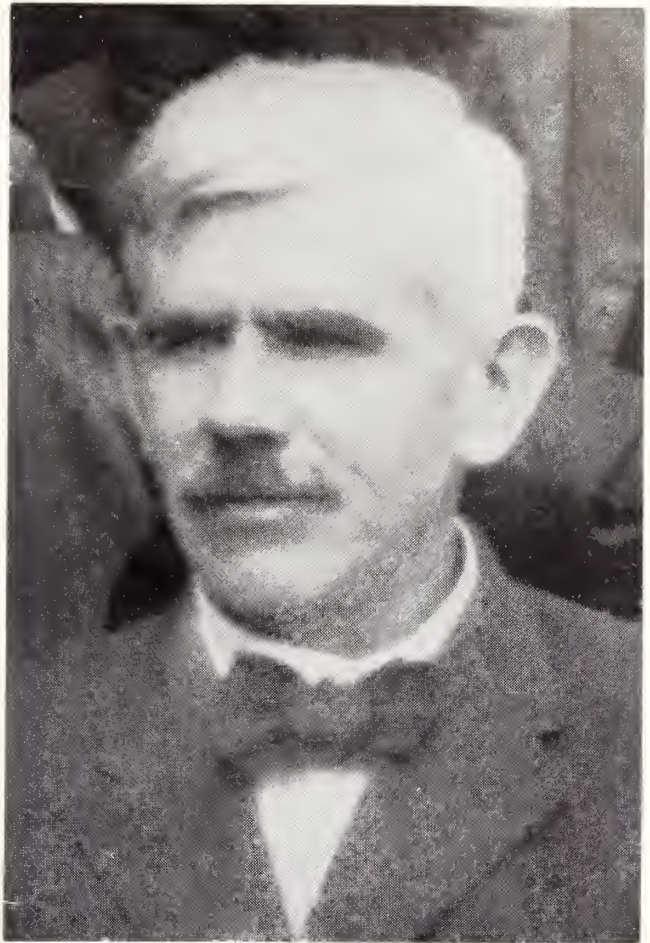


Figure 3. Marshall A. Barber.

a single anthrax bacillus would produce the disease in a mouse. Dr. William H. Welch once told me that, when the illustrious Robert Koch visited America in 1907, there were two things he wished to see—the organisms Howard Ricketts had found in Rocky Mountain spotted fever and Barber's method of isolating individual bacteria. He was skeptical of Barber's claims, but one demonstration convinced the great bacteriologist.

When the clinical years were established at Rosedale, Dr. M. T. Sudler (*Figure 4*) was appointed Dean of the Scientific Department at Lawrence; Dr. George Hoxie (*Figure 5*), Dean of the Clinical Department at Kansas City. Abraham Flexner, whose explosive, though beneficent, report on *Medical Education in the United States and Canada*, which was published in 1910, made some interesting comments on the new medical school. A few excerpts follow:

The budget for the current year is \$17,000 for the Scientific Department, and \$23,000 for the Clinical Department. . . . The Clinical Department has a small hospital of 35 beds, not used, however, to the best advantage. Two dispensaries are available, one at the Rosedale building, not used for teaching until this year; the other, the so-called North End Dispensary,

where a fair amount of material has hitherto been handled in an incredibly slipshod manner.

Mr. Flexner finished his report by remarking among other things, "That the needs of a university medical department are so great that the university will find it necessary to refrain from many other projects, pending the upbuilding of a credible school of medicine." After reading Mr. Flexner's report, it requires no great perspicacity to discover that he did not consider the school in 1910 entirely credible (*Figure 6*).

When I arrived in Rosedale, in 1914, conditions were not quite like those described in Flexner's report. The hospital now, I was assured, had 50 beds, instead of 35; the "so-called" North End Dispensary, which handled its material in "an incredibly slipshod manner," had been abandoned; and the professor of pathology no longer "is expected to eke out his income by outside work," as when Flexner visited the institution. The total assets of the institution consisted of seven and one-half acres of land (not a bargain at any price), \$95,000 invested in three buildings, and an annual budget of \$30,000 at Rosedale. But there were assets not listed in the routine

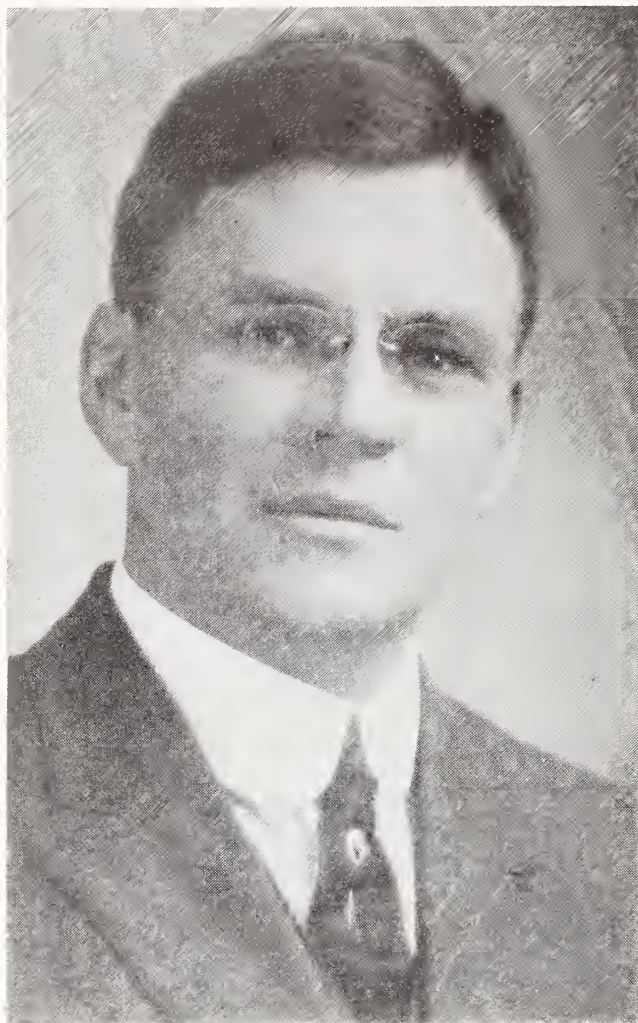


Figure 4. Mervin T. Sudler.

reports of the Chancellor—the ability and determination of some of the faculty.

I came to Kansas via California. I was in Munich working in Friedrich Müller's clinic; that is, working as much as the distractions of that delightful city permitted, when I received an offer from Dr. Ophüls to join the department of pathology at Stanford as instructor. Almost simultaneously, I received a letter from my old chief at Johns Hopkins, Dr. Lewellys F. Barker, advising me to accept the Stanford offer. I deliberated the matter at some length. Years later, I read in Naunyn's autobiography his reaction after attending the clinic of Professor Frerichs in Berlin. "After the first lecture of Frerichs," wrote Naunyn, "my goal stood clearly before my eyes . . . that my life belonged to internal medicine." I had had the same reaction after attending Müller's clinics. However, the Oslerian tradition, in which I had been raised, urged the internist to spend at least a year or two in pathology before pursuing internal medicine. This Dr. Barker called to my attention. So I decided to go to San Francisco.

Dr. Ophüls asked me to cable my decision. When

I went to the cable office in Munich and said that I wished to send a cable to San Francisco, the clerk smiled and said, "Which one?" passing me a list of cable stations in which I saw a whole column of San Franciscos. It seemed that every Spanish-speaking country in the world had one or more San Franciscos, with the various regions of Italy thrown in for good measure. I went to San Francisco, California, where I had a delightful year working under an able and generous chief. Dr. Ophüls was born in New York of German ancestry but, when a boy, went with his family to Germany, where his father had been sent as the representative of a New York firm. Dr. Ophüls had gone to school in Germany, received his medical degree at Göttingen, where he belonged to a *Korps*, fought several duels, and had a few scars on his left cheek. After graduation, he remained at Göttingen with his fellow student, Ludwig Aschoff, as assistant in the Pathological Institute. Some time later, he received a call to the University of Missouri as professor of pathology, which, wishing to return to the United States, he accepted. Columbia, Missouri, Professor Ophüls thought a delightful town, and he liked the people, the students, and his colleagues. However, it was difficult to teach pathology since he



Figure 5. George H. Hoxie.



Figure 6. Freshman Class of 1909. (1) D. C. Smith; (2) J. W. Myers; (3) G. G. Wright; (4) M. P. Springer; (5) T. H. Aschman; (6) Walter; (7) Dr. Smith; (8) John Henry; (9) James Jolby; (10) Miss L. Fowler; (11) J. E. Langewalter; (12) Dr. Sudler; (13) Moon; (14) Frank Maple; (15) Howard E. Curl; (16) W. W. Wininger.

found no pathology there. During the year he was there, he did perform one autopsy, which created such a sensation that doctors flocked in from adjoining towns to see it. After a year at Missouri, Ophüls was called to San Francisco and was soon recognized nationally as one of the leading pathologists of his generation.

At the end of my year with Ophüls, I received a letter from Dr. Sudler, associate dean of the University of Kansas, offering me the chair of pathology. That was a stunner! After one year in pathology, four years after my graduation in medicine, I was to advance from instructor in pathology to professor and head of a department of pathology. When I discussed the matter with some of my colleagues, they looked at me incredulously and said that I must be crazy to think of leaving San Francisco for Kansas City. If they were thinking of the two cities in terms of weather, they were unquestionably correct, but there are other things besides weather, as I tried to explain to them. Dr. Ophüls advised me to do just what I thought best, and so in September, 1914, I arrived in Rosedale.

When I was appointed professor of pathology at the Medical School of the University of Kansas, I had never seen the Medical School, and the Medical

School had never seen me. I felt the Medical School was taking a big chance, and, as I later learned from Dr. Sudler, they felt I was taking a chance. In fact, Dr. Sudler said that he was afraid I would wish to investigate the pathology department before I accepted, and, if I did, he knew I would decline.

I made my first trip to the Medical School via the street car down Southwest Boulevard. A friend from San Francisco had already told me about the Southwest Boulevard. She had stopped over in Kansas City a few months previously between trains and, having heard of Kansas City's boulevard system, climbed into a cab and asked the cabbie to drive over the boulevards. The cabbie said that he was a newcomer to Kansas City and the only boulevard he knew was the Southwest Boulevard. So they drove the length of the Southwest Boulevard and returned to the Union Station, with my friend unimpressed by the boulevard system of Kansas City. However, I had been on the boulevards of Kansas City and realized that Southwest Boulevard was not exactly one of the showpieces of the system.

When I alighted from the street car, another chap, who left the car at the same time, approached me with a friendly smile and said, "I suppose you are one of the students at the medical school although

your face is not familiar to me." "Well not exactly," I answered. "As a matter of fact, I am the new professor of pathology."

He laughed heartily and said, "Well, I'm a sort of professor myself. I am Sam Roberts of the department of nose and throat" (*Figure 7*). And thus began a friendship which has lasted more than 40 years.



Figure 7. Dr. Sam Roberts.

Sam and I climbed up the steep hill to College Avenue, which ran in front of the Hospital, and I climbed up a second hill—irreverently called "Goat Hill" by the students (*Figure 8*). On the top of the hill I found the pathology building, in which the Dean's office was located and where I was to report. I don't recall that I was in the least out of breath by my climb. However, in later years, some of my visitors found the ascent rather strenuous. I recall, for instance, that one day Dr. Frank Billings of Chicago climbed up "Goat Hill" to pay a call. Dr. Billings was a large man, decidedly on the well-nourished side and

somewhat florid, rather the English country squire type. When he reached the pathological laboratory, he was puffing and his complexion was rather purplish. He sat down for a few minutes and, after regaining enough breath to speak, observed, "Well, my heart must be a lot better than I thought it was."

On arriving at the Dean's office, I was warmly welcomed by Dr. Sudler and, after a brief conversation, asked to be shown the pathological laboratory. Dr. Sudler said rather wryly, "Well, it's on the floor above, but I haven't been up there for a month. Everytime I go up it depresses me. But come on. It's yours now, and you should see it. I'm glad you accepted the position without making a preliminary visit."

So up we went, and it really was depressing. The laboratory was a huge room the entire length of the building and about two thirds of its width. A long shelf-like table ran around the entire wall under the windows, and here the students placed their microscopes, getting their light from the windows. I was interested in the fact that the pathology building was not in line with the other buildings but was, as we used to say, "catawampus to everything." I don't find the word, "catawampus," in Webster's Unabridged Dictionary or even in Mencken's *American Language*, but it definitely belongs to the Middle Western vernacular and was generally understood. I learned, on inquiry, that the building had been designed by Dr. Frank Hall, a former professor of pathology, who had insisted that the building face the north so the laboratory would get the full benefit of the north light. And it did. It was well lighted through the row of windows on the north side.

At the end of the laboratory there were a number of cases with open shelves upon which rested glass jars containing pathological specimens. This museum of pathological anatomy, which Dr. Hall had assembled, was, as I found later, an excellent collection. It had, however, been neglected by Dr. Hall's successors, and now many jars were empty, others had lost their tops and were half filled with fluid out of which protruded drying and disintegrating specimens.

But what disturbed me particularly was the rubbish which had accumulated on the floor in heaps—broken test tubes, dried up specimens, empty cardboard boxes, waste paper, and just plain dirt. The windows of the laboratory had not been washed, I am sure, since Dr. Hall left several years previously. When I asked about the janitor service, I learned that the janitor lived in a room on the basement floor, but, as he had a bad heart and could not climb the stairs. Dr. Sudler didn't have the heart to ask him to come up to the second floor. When I saw the poor fellow later, trying to go up the stairs to the first floor, puffing with each



Figure 8. "Goat Hill." Laboratory building in the foreground; Bell Memorial Hospital on the left.

step and blue as a baby with congenital heart disease, I understood Dr. Sudler's compassion and also realized that the pathological department would have to be its own janitor.

During the next few days, I learned more and more about my department. I was, it seemed, the whole department. I was the professor, associate professor, assistant professor, instructor, assistant and technician. My predecessor, who seemed to have been a very amiable person, upon learning that another department wanted his technician, acquiesced with the remark that he didn't need one, anyway. When I went over the schedule of classes with Dr. Sudler, I found another interesting example of amiability. The professors then—as now—were always arguing about the hours for classes, so the department of pathology took the periods no one else wanted, with the result that the classes in pathology never met at the same hour on successive days. The laboratory period in pathology, for example, on Monday might be from 8 to 9, 11 to 12, and 4 to 5, while on Wednesday it would be 10 to 11 and 3 to 4. This, today, seems fantastic but it was true.

As time went on, I learned even more about my department. There was no catalogue of the specimens in the museum. Dr. Hall had made a catalogue, but it had been lost, and it made no difference, anyhow, to my predecessor. He knew where the specimens were he wished to demonstrate, so why bother with a catalogue. I looked for the records of the autopsies in the hospital. There were none. When a patient died in the hospital and the interne secured permission for an autopsy, he did the autopsy himself. If it was interesting, he might make a note, and, if it was unusual, he sometimes took the specimen up

to the pathological laboratory and made a frozen section of it. The professor of pathology didn't like autopsies, and I was told that, after he had been called over to the hospital one night to do an autopsy, he had his phone removed so he couldn't be bothered. There was no collection of surgical specimens and no records of surgical pathology.

This may seem extraordinary to the physician and student of today, but I recall very vividly one occasion when I saw a well-known surgeon in Kansas City, Missouri, remove an abdominal tumor from a patient and then drop it in a slop jar. I asked him politely,

"What kind of a tumor is that, doctor?"

"I haven't the faintest idea."

"May I have it?"

"Certainly. I have no use for it. I'm interested in the patient."

Dr. Hertzler, of course, was not that kind of a surgeon. When he was twitted for his insistence on having the specimens he removed, he retorted, "The only reason I operate is to get the specimen."

The state of pathology and surgical pathology at the Bell Memorial Hospital was not, however, as chaotic as the above description might indicate. Although the professor of pathology did not act as pathologist to the hospital, Dr. Lindsay Milne, professor of medicine, was an excellent pathologist, often performed autopsies on the medical patients who died, afterwards made sections and studied them, since he had a technician, a microtome, and equipment for imbedding tissue. The surgeons, when they excised a tumor or some pathological tissue, either asked Dr. Milne to prepare sections or took it downtown to Dr. Frank Hall, who had a private

laboratory on 12th and Wyandotte in Kansas City, Missouri.

After looking over the schedule of classes, I found to my relief that the sophomores, who were to be my first victims, were still in Lawrence and would not come to Rosedale until after Christmas. I began to plan the course along the lines to which I had been accustomed in Baltimore and San Francisco. To my dismay, I found there were no blocks of tissue or stained slides for class instruction. In the immediate past, the professor, as soon as the class met, went to one of the jars in the museum, cut off a piece of tissue, took it to a freezing microtome, made some frozen sections, and passed them out to the class to stain and study. After they had studied this slide, he went to another jar, cut out another piece of tissue, and repeated the process.

However, all was not gloom. On the cheerful side of the balance sheet was \$200, if I remember correctly, for maintenance and \$300 for student assistance. The first two months, much of the maintenance was used to buy soap, towels and mops, while my student assistant, Mr. Chauncey McKinlay from Wichita, spent most of his time janitoring rather than preparing the material for the coming course in pathology. Nor was the Professor too proud to engage in janitoring. We washed and scrubbed floors, walls and windows, burned countless paper boxes and scrap paper, carried baskets of broken bottles, test tubes and trash to nearby dumps. Presently, Dr. Sudler came in the laboratory with the remark that this was his monthly visit to the floor above and that things were looking so much better now that he really enjoyed visiting us. So, after much physical exertion, we no longer had to apologize for our dirty department. We now turned our attention to preparing for our course. Dr. Milne generously allowed us the use

of his own imbedding equipment, which we used until we got our own. Before the course began, Dr. Sudler procured for me somehow, and from what source I know not, a Minot microtome. So I began to face the future with more equanimity.

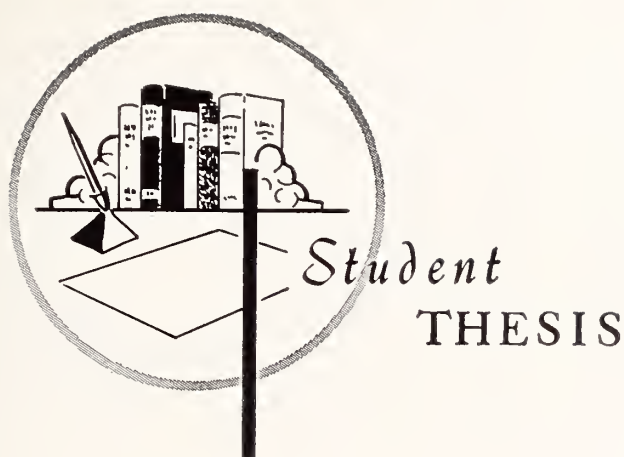
When everything seemed quiet, peaceable, and proceeding properly, Dr. Sudler upset my equilibrium by pointing out that I was not just professor of pathology but professor of pathology *and* bacteriology and that the students who were coming down from Lawrence after Christmas were scheduled to have courses in pathology three afternoons a week and in bacteriology two afternoons. I then received an elementary lesson in academic politics. Previously the course in bacteriology had been given by the professor of botany, an arrangement which had seemed logical enough to the Chancellor when it was pointed out to him that bacteria behaved more like plants than like animals. Dr. Sudler, however, felt that bacteriology should be taught to medical students by a man interested in medicine rather than by a botanist and succeeded in transferring the course in bacteriology to the department of pathology. Thus, the department of pathology became the department of pathology *and* bacteriology. If anyone is inclined to doubt this story, I refer him to the catalogue for 1904-05, which lists the course in bacteriology under the department of botany and states that the course is given by M. A. Barber, associate professor of botany. This change was beneficial, both for the course and for Dr. Barber. His interests were transferred from cryptogamic botany to medical bacteriology and parasitology and with the years he became an outstanding authority in this field. Dr. Barber had resigned before my advent.

(To Be Continued Next Month)

REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.



Carcinoma of the Endometrium—An Investigation of Some Unresolved Problems

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Introduction

CARCINOMA OF THE ENDOMETRIUM at the present time has one of the best prognoses of all gynecologic cancers. However, when compared to carcinoma of the cervix, its incidence seems to be on the increase. Approximately 20 years ago, the ratio of cervical carcinoma to endometrial carcinoma was about 8:1. At the present time, the ratio is 3:1 or even 2.5:1 according to some authorities. This apparent increase of endometrial carcinoma is probably a statistical increase and not a real increase. The advancing longevity of the female population coupled with the better methods of detection of cervical carcinoma should adequately account for the statistical increase in endometrial adenocarcinoma. Even though carcinoma of the endometrium has a good prognosis in general, there is still ample room for further advances in the therapy of this disease. The most important factor in the therapy of all cancer is early detection and diagnosis. In carcinoma of the endometrium, the scope of the pathologic lesions range from the highly anaplastic cancer to the highly well-differentiated lesions. Occasionally, a particular lesion may be so well-differentiated as to present a problem

of diagnosis to even the most astute surgical pathologist. This paper is written with the purpose of reviewing a ten-year experience with endometrial carcinoma at the University of Kansas Medical Center and of presenting a new concept which may be of value in the histologic differentiation between well-differentiated adenocarcinoma of the endometrium and the various forms of benign hyperplasia. This concept revolves around the occurrence of foamy macrophages in the stroma of adenocarcinoma of the endometrium.

Methods and Materials

One hundred sixteen consecutive cases of adenocarcinoma of the endometrium collected from the surgical pathology files of the Department of Pathology at the University of Kansas Medical Center were studied. When available, hospital records were also analyzed and pertinent clinical information was recorded. All cases analyzed were diagnosed between the years 1952 through 1962. Follow-ups were secured by the University of Kansas Medical Center Tumor Registry. All slides from cases of endometrial carcinoma, whether from D&C specimens or hysterectomy specimens, were stained initially with H&E and were analyzed microscopically. The degree of differentiation was determined according to the classification presented by Broders and Mahle. The presence or absence of foam cells was noted and, when

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. McLaughlin is now serving internship at the University of Kansas Medical Center, Kansas City, Kansas.

present, were placed into one of three groups according to the number and frequency of the unusual cells. The extent of invasion of the myometrium was recorded from hysterectomy specimens, as well as the presence or absence of leiomyomata. When ovaries were available, they were also studied and unusual findings, especially cortical stromal hyperplasia, were recorded. In cases with large numbers of foam cells, special staining procedures were carried out to further evaluate the nature of these cells. From the clinical records of each patient, a variety of material was collected. The age of the patient at the time of diagnosis as well as the age at the onset of symptoms was recorded. The age at menopause was noted when applicable. Gravity, parity, weight, height, and blood pressure were recorded. The presence of any associated diseases was noted. An attempt was made to determine the number of women who received exogenous estrogen therapy. Finally, the method of treatment was studied and clinic follow-up visits were analyzed and compared to the survival statistics which are available at this time.

Results

PATHOLOGICAL: The various cases were analyzed as to degree of differentiation according to Broders and were grouped into one of four groups (*Table 1*).

TABLE 1 HISTOLOGIC VARIATION		
Degree of Differentiation	No. of Cases	%
Well-differentiated	22	19.0
Moderately well-differentiated	54	46.6
Moderately undifferentiated	25	21.5
Poorly differentiated	15	12.9
Total	116	100.0

Of the total number of cases, 17 contained areas of squamous metaplasia and were thus called adenoacanthomas. This represents an incidence of 14.7 per cent. All but three cases of adenoacanthomas were associated with well-differentiated or moderately well-differentiated tumors. The uterus was available for examination in 69 cases. Leiomyomata were present in 28 of the 69 cases, representing an incidence of 40.6 per cent. The ovaries were available in 61 cases. Stromal cortical hyperplasia was apparent in 36 of the 61 cases, representing an incidence of 59 per cent. Of the total group of histologic specimens, 35.3 per cent were papillary carcinomas and 64.7 per cent were of the diffuse variety.

Not much significance has been attached to the presence of the previously mentioned foam cells found in the stroma of adenocarcinoma of the endometrium. In fact, only a few scattered reports concerning this subject are available in modern medical literature. Several years ago, the occurrence of these foamy macrophages was recognized in only about ten per cent of the cases reviewed. More recently, however, they are being found with considerably more frequency. Our series reveals an incidence of 47.4 per cent.

CLINICAL: The average age at the time of diagnosis based on information obtained from 105 of the 116 patients was 62.95 years (*Table 2*). Sixty-seven cases,

TABLE 2 AGE AT TIME OF DIAGNOSIS		
Age of Diagnosis—Years	No.	%
Less than 40	1	1.0
40-49	9	9.0
50-59	32	30.2
60-69	35	33.3
70-79	23	21.8
80 plus	5	4.7
Totals	105	100.0

or 63.8 per cent, were diagnosed between the ages of 50 and 69 years. Only ten cases, 9.5 per cent, were less than 50 years of age at the time of diagnosis, and only one patient was less than 40 years of age. The oldest patient in this study was 87 years old and the youngest was 39 years. The average age at menopause was 49.6 years. The presenting complaint in all cases was irregular vaginal bleeding. The average duration of symptoms in 87 patients was 14.34 months, with the range being from one week to more than ten years. Based on information from 91 patients, 77 were postmenopausal, 84.6 per cent, while 15.4 per cent, or 14 patients, were premenopausal. Based on 97 patients, 21.7 per cent had never been pregnant while 28.8 per cent had never given birth to a viable infant. Sixty-five per cent of the patients had had two or less viable births. Of 98 patients, fully 67.2 per cent were classified as hypertensive based on the standard criteria set forth by the American Heart Association. Twenty-one of 94 patients, 22.3 per cent, were either overt diabetics or had diabetic type glucose tolerance curves. Information available from 95 patients revealed that 61, or 64.2 per cent, weighed in excess of 150 pounds. Fifty of the 95 patients, 52.6 per cent, weighed more than 170 pounds and 29 of 95 patients, 30.5 per cent, weighed in excess of 200

pounds. The average height of 82 patients was 62.4 inches. Out of 60 patients, 19 gave positive family histories of cancer. A summary of both clinical and pathological results is presented in tabular form (Table 3).

TABLE 3
SUMMARY OF RESULTS

Condition	No. of Cases	No. With Condition	%
Fibroids	69	28	40.6
Ovarian cortical stromal hyperplasia	61	36	59.0
Squamous metaplasia	116	17	14.7
Foam cells	116	55	47.4
Grade I	116	36	31.0
Grade II	116	5	4.3
Grade III	116	14	12.1
Obesity: greater than			
150	95	61	64.2
170	95	50	52.6
200	95	29	30.5
Hypertension	98	66	67.2
Diabetes	94	21	22.3
Postmenopausal	91	77	84.6
Family history of carcinoma	60	19	31.6
Gravida 0	97	21	21.7
Para 0	97	28	28.8

Discussion

FOAM CELLS: Although foamy macrophages are found with considerable frequency in histologic sections of carcinoma of the endometrium, very little information concerning these cells is found in the literature. They are not mentioned in any of the standard texts of gynecology as far as I am able to determine. Two isolated reports are available before 1958 in the foreign literature. Dubs in 1923, and Nunes in 1945 each describe one case of adenocarcinoma of the endometrium which contain foam cells. It was not until 1958 that Harris devoted a thesis to the occurrence of these cells in gynecologic lesions. She studied a wide variety of endometrial conditions and reported an incidence of 11 per cent of cases of endometrial carcinoma having foam cells. Of additional interest was the occurrence of foam cells in two of 400 cases of cervical polyps. No foam cells were discovered in endometrial polyps, normal endometrium, or hyperplastic endometrium. In 1959, Krone and Littig found foam cells in 13 per cent of their cases of adenocarcinoma of the endometrium. In 1961, Scully and Richardson reported an incidence in their collection of ten per cent. In 1962, Salm reported

the occurrence of foam cells in 7.5 per cent of his cases of endometrial adenocarcinoma. In addition, he found similar cell types in 10.8 per cent of endometrial polyps. The most recent study is reported by Isaacson who reviewed 100 cases each of adenocarcinoma of the endometrium, hyperplastic endometrium, cervical polyps, and normal endometrium. His findings include a 43 per cent incidence of foam cells in endometrial carcinoma and none in the other types of endometria or cervical polyps. As may be observed from this brief review of the available literature, there is a wide variety of opinion as to the actual frequency of these cells in the various endometrial lesions. To date, the only conclusion that can be made with certainty is that these foamy macrophages probably do not occur in normal or hyperplastic endometria. Our study, based on 116 consecutive cases of adenocarcinoma of the endometrium, reveals an overall incidence of 47.4 per cent of cases with foam cells. We found that these cells were sometimes found in large groups or sheets with 50 or 60 cells in a cluster. If this type of histologic picture was observed, or if more than ten smaller clusters were found, the case was classified as Grade III (Figure 1). If five to ten clusters were discovered, the particular case was classified as Grade II. Grade I cases included those which had isolated foam cells or from one to five small clusters. According to our system of classification, we found that 31 per cent of our cases fell into Grade I; 4.3 per cent in Grade II; and 12.1 per cent into Grade III. To evaluate the incidence of foam cells in benign endometrial conditions, 100 consecutive specimens of endometrium, excluding adenocarcinomas and products of conception, obtained by

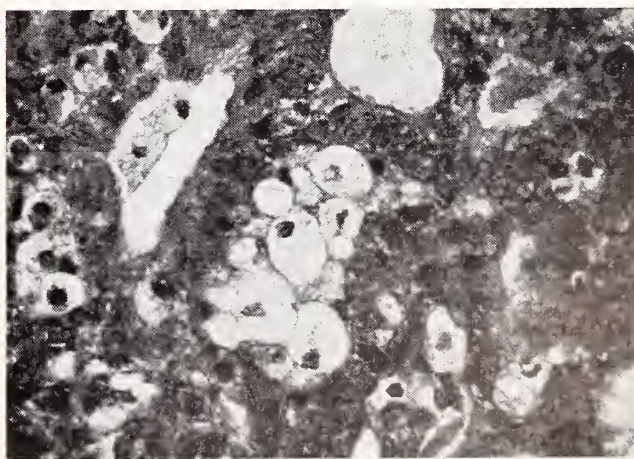


Figure 1. Micro—Moderately well-differentiated adenocarcinoma of endometrium showing "foam cells." Such cells have been found in 47.4 per cent of this series of endometrial carcinomas and have not been observed in any other pathologic condition of the endometrium in the experience of this institution.

dilatation and curettage during the year 1962, were re-examined microscopically. No foam cells were found in this group.

The origin of these foamy macrophages is unclear. Isaacson feels that their presence may possibly be related to the rapid turnover of cells within the malignant lesions, with subsequent release of neutral fats from necrotic cells which is then phagocytized by stromal histiocytes. This is certainly a plausible explanation. Available evidence reveals that the foam cells invariably give positive fat stains, indicating the presence of variable amounts of intracellular neutral fat.

Over 1,500 specimens of various types of endometria have been examined microscopically for the presence of foam cells by the various authors publishing treatises on this subject. With the exception of Salm who reported similar cell types in a few endometrial polyps, foam cells were found exclusively in endometrial stroma from cases of adenocarcinoma of the endometrium. In light of all the accumulated evidence, we feel that the presence of these cells in a histologic section of endometrium is highly suggestive, if not actually pathognomonic, of adenocarcinoma of the endometrium.

DIFFERENTIATION: There is much to be gained by classifying the various endometrial carcinomas as to degree of differentiation from the standpoint of prognostic significance. It has been known for many years that, in general, the more differentiated the tumor, the better are the chances for a five-year survival of the patient. It appears that tumors which are well-differentiated and tend to form well-defined glandular structures are actually very slowly growing lesions and are less prone to rapid and widespread metastases than are the highly anaplastic carcinomas. About two thirds of our cases were classified as either well-differentiated or moderately well-differentiated (*Table 1*) and are considered from the standpoint of prognosis and survival below.

SQUAMOUS METAPLASIA: Of our total number of 116 cases, 17 cases, or 14.7 per cent, contained discrete areas of squamous cells and were termed adenoacanthomas (*Figure 2*). Corscaden has stated that from one to 28 per cent of any series of cases of adenocarcinoma of the endometrium will have areas of squamous metaplasia. Some feel that adenoacanthomas are more malignant types of carcinomas with earlier and more widespread metastases. Some authorities view these tumors as being less sensitive to radiation than pure adenocarcinomas. Of our 17 patients whose lesions had areas of squamous metaplasia, there are six, five-year survivals and three survivals of less than five years, but without recurrence. Four patients of this group have died with widespread

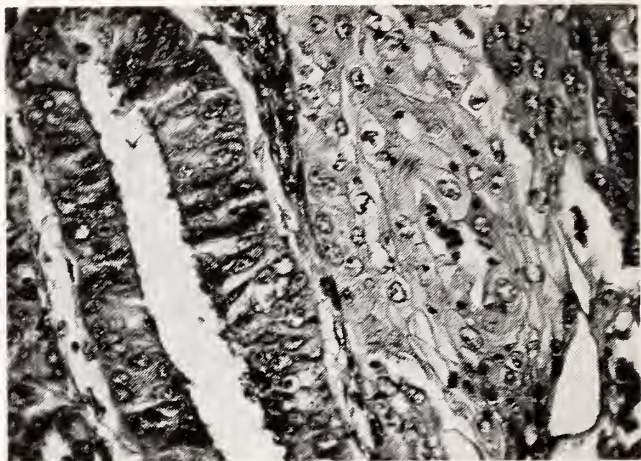


Figure 2. Micro—Well-differentiated adenocarcinoma of endometrium showing squamous change—adenoacanthoma. Such alterations do not appear to alter significantly the clinical picture.

metastases and four have been lost to follow-up.

FIBROIDS: Leiomyomata seem to be found more frequently in women with adenocarcinoma of the endometrium than in the general female population. Novak reports that about 20 per cent of all women over the age of 30 years will have uterine myomas. Our studies indicate an incidence of 40.6 per cent of the uteri examined contained fibroids (*Figure 3*). Their significance is not quite clear. They may represent evidence of a diseased uterus or they may be the end product of prolonged and unopposed estrogen stimulation.

OVARIAN CORTICAL STROMAL HYPERPLASIA: Of all the unresolved problems in the area of adenocarcinoma of the endometrium, probably the most interesting and controversial question at the present time is the exact relationship, if any, of ovarian cortical stromal hyperplasia to the development of endometrial carcinoma. The proponents of the Estrin

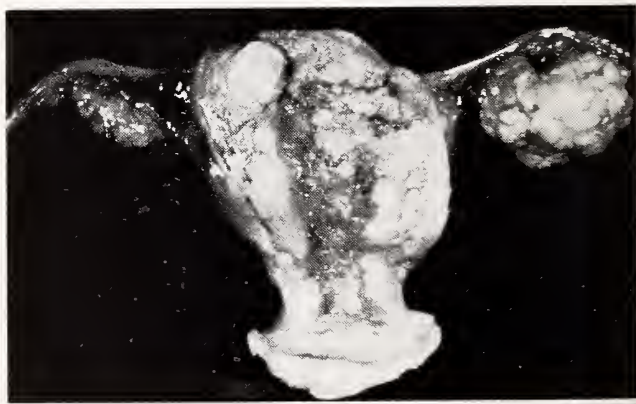


Figure 3. Gross—Uterus with diffuse ulcerating endometrial carcinoma showing characteristic mode of extrusion into uterine wall. Enlargement of left ovary signifies early metastatic disease. Note small leiomyoma in right cornual area.

theory for the development of endometrial carcinoma feel that ovarian cortical stromal hyperplasia produces unopposed estrogen which has as its end organ target, the endometrium. Most persons now accept the belief that prolonged, unopposed estrogen stimulation can cause various forms of endometrial hyperplasias. Hertig observes that adenocarcinoma of the endometrium does not arise from normal endometrium. He goes on to say that endometrial hyperplasia, especially cystic and adenomatous hyperplasia, have often been observed in endometrial biopsies of women who eventually develop frank carcinoma. Meissner has shown experimentally that various forms of endometrial hyperplasia, and even carcinoma of the endometrium, can be produced by prolonged exogenous estrogen administration in rabbits. Roddick and Green, investigating the relationship between ovarian stromal hyperplasia and endometrial carcinoma, found no significant difference in the degree of stromal hyperplasia in the ovaries from cancer patients when compared to a similar number of controls. On the other hand, Marcus recently reported a series of 100 patients with endometrial carcinoma and 100 control patients in which the cancer group revealed a significantly higher incidence of ovarian cortical stromal hyperplasia. The ovaries were available for study in 61 of the cases in our series. Of these 61 cases, 36 revealed various degrees of ovarian cortical stromal hyperplasia. (Figure 4). This represents an incidence of 59 per cent. There is much circumstantial evidence to support the Estrin theory and the proposed role of ovarian cortical stromal hyperplasia in the explanation of the etiology of adenocarcinoma of the endometrium.

INCIDENCE, AGE OF ONSET: The incidence of carcinoma of the endometrium, according to Corscaden, is 0.0119 per cent per year of the total female population. This disease is primarily a disease of the postmenopausal female. The average age at the time of diagnosis is probably in the range of 58 to 64 years, depending on whose study one wishes to consult. The British Columbia Cancer Institute reports an average age of 62 years at the time the diagnosis is established. Randall and Goddard recently reported on 531 cases of fundal carcinoma and found an average age at diagnosis of 59.2 years. Boutsellis, *et al.*, reviewing 269 cases, reports an average age of 60 years at the time of diagnosis. Our study revealed an average age at diagnosis of 62.95 years, with the greatest incidence occurring between the ages of 60 to 69 years (Table 2). The average age at menopause, based on available information from 77 patients, was 49.56 years. Fourteen patients had never experienced a cessation of menstrual periods and were classified as premenopausal. Boutsellis reports an average meno-

pausal age of 49 years. All available information confirms that a delayed menopause is typical in patients who subsequently develop carcinoma of the endometrium.

SYMPTOMS: The initial symptom in the vast majority of patients with endometrial carcinoma is irregular or abnormal vaginal bleeding. One hundred per cent of our postmenopausal patients indicated this complaint. Randall reports that 94 per cent of his patients had irregular vaginal bleeding as their presenting complaint. Other symptoms may include a foul vaginal discharge and pelvic pain. When pelvic pain is a complaint, one must certainly entertain the possibility of nerve root involvement due to metastatic carcinoma. Fortunately, adenocarcinoma of the endometrium generally reveals itself in a majority of cases by abnormal bleeding before metastases occur. The



Figure 4. Gross—Uterus and adnexa with carcinoma of endometrium associated with stromal hyperplasia of ovaries. Note gonads to be slightly enlarged, somewhat smooth and fleshy.

average duration of symptoms in any large series appears dependent on the relative socio-economic position and the degree of medical awareness of the patients in the particular series. The average duration of vaginal bleeding was 14 months in this series. As the general population becomes more aware of dangerous medical signs and symptoms, one should reasonably expect this figure to decrease as awareness increases.

PARITY: It has long been felt that women who have not borne children will have a higher incidence of carcinoma of the endometrium. Randall reported that 26 per cent of the patients in his series had never been pregnant. Boutsellis stated that 30 per cent of his patients were nulliparous and 65 per cent had given birth to two or less viable infants. We found that 21.7 per cent of our patients had never been

pregnant while 28.8 per cent were nulliparous. Sixty-five per cent had two or less viable births.

HEIGHTS AND WEIGHTS: Almost all available reports on carcinoma of the endometrium mention the increased incidence of obesity. Indeed, the typical woman with a fundal cancer is usually obese. It has been pointed out that, on an average, the patients with this disease are about ten per cent overweight. Randall found that 58 per cent of the patients in his series weighed in excess of 170 pounds. We found that 52.6 per cent of our patients weighed more than 170 pounds and, furthermore, that 30.5 per cent weighed more than 200 pounds. The average weight derived from our series of patients was 178.5 pounds and the average height was 62.4 inches.

OTHER DISEASES: In addition to obesity, diabetes mellitus and hypertension have been implicated as being found frequently in association with adenocarcinoma of the endometrium. Our study supports this implication since 22 per cent of our series were either clinical diabetics or had diabetic glucose tolerance curves.

Based on the standard criteria set forth by the American Heart Association, fully 67 per cent of our patients were hypertensive. Both diabetes and hypertension have been reported by others as being found more frequently in patients with carcinoma of the endometrium than in the general population. Obesity, diabetes, and hypertension are found together in many patients without endometrial carcinoma. The exact relationship of endometrial carcinoma to this triad of conditions is unknown. An interesting observation regarding diabetes and obesity deserves mention at this time. By subdividing our series of patients into diabetics and non-diabetics, we found the average weight for the diabetic population to be 196.3 pounds while the non-diabetic average weight was 170.8 pounds.

HEREDITY: Some authors indicate an increased incidence of family history of cancer in patients with adenocarcinoma of the endometrium. In our series, 19 out of 60 patients, 31.6 per cent, revealed a positive family history of cancer.

ESTROGEN THERAPY: Several authors who support the Estrin theory for the explanation of the etiology of adenocarcinoma of the endometrium feel that exogenous estrogen hormones administered to postmenopausal females may play a role in the development of fundal carcinoma. Only six per cent of the patients in our series positively received estrogen therapy prior to the diagnosis of their disease. Several others, however, indicated that they had received "hormone shots" from their physicians before being referred to this institution for therapy. Boutsellis reports that 11.5 per cent of the patients in his series

received estrogenic hormone therapy prior to the time of diagnosis of a uterine carcinoma. The exact relationship between endometrial adenocarcinoma and the estrogen hormones is still unclear.

Survival

As alluded to previously, survival rates for carcinoma of the endometrium, in general, appear to be related directly to the degree of differentiation of the tumor. The more differentiated lesions seem to have less propensity for rapid local invasion and distant metastases. Therefore, the more differentiated the lesion, the better the chance for a five-year survival with definitive therapy. There is a tremendous wealth of survival statistics regarding carcinoma of the endometrium available in the medical literature of the past decade. It is not the primary objective of this paper to present our survival statistics since several of our patients have not been followed for five years at this time. Suffice it to say that our statistics (*Table 4*), although incomplete, seem to be comparable to the accepted values set forth in the literature. Virtually all patients included in the study were treated with intracavitary radium followed by abdominal hysterectomy. Our five-year survival rate, arrived at by excluding those patients lost to follow-up, those still alive but less than five years post diagnosis, and those dying due to other diseases, is 64.2 per cent.

TABLE 4
FOLLOW-UP STATISTICS

	WD	MWD	MUD	ANAP	Totals
Survival—5 years or more	8	18	10	7	43
Survivals follow-up less than 5 years to date	8	11	—	1	20
Deaths due to carcinoma of the endometrium	2	9	9	4	24
Deaths due to other causes	—	11	2	—	13
Lost to follow-up	4	5	4	3	16
Totals	22	54	25	15	116
Per cent 5 year survivals . . .	80	66.7	52.6	63.6	64.2

Summary and Conclusions

One hundred sixteen cases of adenocarcinoma of the endometrium evaluated at the University of Kansas Medical Center between 1952 and 1962, have

(Continued on page 292)



Tumor CONFERENCE

Dysgerminoma and Gonadoblastoma

Edited by **WILLIAM S. TIHEN, M.D.,** *Kansas City, Kansas*

Dr. George Jackson (Resident in Gynecology):

This 25-year-old, single, gravida zero, white woman was admitted with a chief complaint of "tumor of the ovary." She was in fairly good health until two weeks before admission when she developed nausea, vomiting and abdominal distention. Several days later, emergency surgery was performed to control massive intraperitoneal hemorrhage arising from a tumor of her right ovary. A right salpingo-oophorectomy was performed and the patient received six units of blood. She did well postoperatively and was transferred to the University of Kansas Medical Center. Her past history is significant in that except for two days of spotting at age 13 she has never menstruated.

She is tall and slender (height 68 inches, weight 110 pounds). She has normal female hair distribution and moderate breast development. Her general appearance is unremarkable. On admission her blood pressure was 110/70 mm. of mercury and her pulse 80 beats per minute. Pelvic examination revealed a very small cervix with a small anterior uterus which sounded to a depth of three inches. Rectal-vaginal examination revealed a firm 8 cm. in diameter mass in the cul-de-sac.

Dr. Wayne Rockwell (Gynecologist): This patient has two problems which warrant further investigation: one, she has an ovarian tumor which is probably incompletely excised; and two, there is some question concerning the adequacy of her reproductive capabilities.

We have very glibly identified this patient as a female, but how do we define a female? There are several criteria: (1) the morphology of the external genitalia; (2) the morphology of the internal genitalia; (3) the type of gonads present (ovary versus testicle); (4) the type of hormones present (andro-

gens versus estrogens); (5) the patient's concept of himself or herself (gender role); and (6) the chromosomal complement. The chromosomal complement can be analyzed by examination of buccal or other epithelial smears for the presence of Barr bodies and by analysis of the person's idiogram from cultures of various tissues, most commonly the peripheral blood.

Now let's analyze this patient according to these criteria. Her internal and external genitalia are female; the right gonad is completely destroyed by tumor but the left gonad looks more like ovary than testicle; and her gender role is female. However, no Barr bodies were seen, and an XY chromosomal complement was demonstrated in her idiogram. Hormonal analysis was not helpful, as she is eunuchoid. What is this patient then? In every respect except for chromosomal composition she is a female.

Medical Student: How many buccal smears were done?

Dr. Rockwell: Two buccal smears and one vaginal smear were done, and all were negative for Barr bodies. We also had two tissue cultures for idiogram studies, and both showed an XY chromosomal pattern.

Let's consider for a minute the significance of the Barr body. Developing female zygotes have no Barr bodies up to day 12 to 16. At 12 to 16 days, one X chromosome, either paternal or maternal, becomes permanently inactivated in every cell. The inactivated X chromosome becomes heteropyknotic and migrates to the edge of the nucleus, thus forming the Barr body. This X chromosome will remain permanently inactive in all cells of the clone derived from the cell in which the inactivation occurred. Absence of Barr bodies may mean the patient is a male, or it may

mean the patient is a female who has lost one X chromosome by nondisjunction. If this nondisjunction occurs during gametogenesis, the patient is a XO Turner's syndrome. If nondisjunction (or anaphase lag) occurs in a cell of the early zygote giving rise to XO and XXX (or XO and XX) clones, and if a Barr body examination is done on cells from the XO clone, no Barr bodies will be demonstrated. In summary, absence of Barr bodies on a buccal smear may mean: (1) the patient is a male; (2) the patient is a XO female; or (3) the patient is a female mosaic and a XO clone was sampled. Idiogram analysis is necessary to distinguish between these three possibilities and in this patient it showed an XY, or male, chromosomal pattern.

If this person is a genetic male, how can she be a female in every other respect? We by no means have the answer to this problem, but a few insights are available. The external genitalia in every embryo will be female unless the embryo's testes produce sufficient androgens to effect their transformation into male genitalia. The internal genitalia develop from either one of two duct systems: The Müllerian ducts (female) or the Wolffian ducts (male). It is hypothesized that the testes produce an as yet unidentified "duct organizing substance" which stimulates development of the Wolffian duct system into male internal genitalia and involution of the Müllerian duct system. Absence of this organizing substance, for any reason, results in development of the Müllerian duct system into female internal genitalia and involution of the Wolffian duct system. In this patient, then, we would postulate absence both of androgens and of duct organizing substance. If this were true, we should expect the remaining gonad to be morphologically a testis, but as previously stated, it looked more like an ovary, a situation for which I have no satisfactory explanation.

Intersex gonads tend to have one of two kinds of tumors. One is a germinoma which, if it arises in a testicle is a seminoma and if it arises in an ovary is a dysgerminoma. The other is a gonadoblastoma which is a tumor containing both germ cell and sex cord elements. It is not known whether these sex cord elements are sertoli cells or granulosa cells. Therefore, on the evidence available, we felt that the tumor in this patient was either a germinoma or a gonadoblastoma. Since the previous operation was performed in a hospital where blood was not readily available and at a time when the patient was in poor condition due to massive blood loss, we felt that re-exploration was necessary to determine whether or not the tumor was resectable.

Are there any x-rays which are helpful?

Dr. Richard Morrison (Resident in Radiology):

The chest x-ray is normal except for air under the diaphragm which resulted from the previous laparotomy. Breast shadows are present. A barium enema shows no evidence of displacement or of extrinsic pressure. The IVP reveals no evidence of a pelvic tumor.

Dr. Rockwell: She did have adequate breast development. I expect that when we put her on supplementary estrogen therapy she will develop very good-size breasts. The size of the breasts is dependent on the sensitivity of the end-organ, and on the amount of estrogen produced. The fact that she does have breast development now indicates a high degree of end-organ sensitivity, since I think she has to date been limited to the estrogen produced by her adrenals. Dr. Jackson, in our workup, were there any laboratory tests which required explanation?

Dr. Jackson: The pregnancy test was minimally positive.

Dr. Rockwell: This is worrisome. Dr. Rodgers, can you explain the positive pregnancy test?

Dr. Clyde Rodgers (Resident in Gynecology): It suggests the possibility of trophoblastic elements existing in the tumor.

Dr. Rockwell: If this were the case, what type of tumor would it be?

Dr. Rodgers: Choriocarcinoma.

Dr. Rockwell: Is there any other type of tumor with which choriocarcinoma might be associated or from which it might be derived?

Medical Student: Dysgerminoma.

Dr. Rockwell: Yes. Dysgerminoma is a malignancy of germ cell origin, and since germ cells are totipotent, tumors derived from them can form somatic (embryonal) components and placental (trophoblastic) components. Therefore, components of the three malignancies: dysgerminoma, choriocarcinoma and embryonal carcinoma, often occur together. Miss Lynch, can you give me any other explanation for her positive pregnancy test?

Miss Dorothy Lynch (Medical Student): Chorionic gonadotropin is basically luteotrophic hormone (LH), which is produced by the pituitary. Since her ovaries were not producing estrogen, and estrogen normally inhibits secretion of LH by the pituitary, the positive pregnancy test could result from over-secretion of LH by the pituitary.

Dr. Rockwell: Yes. This same pattern is occasionally seen in post-menopausal women whose ovaries are no longer producing estrogen. If her positive pregnancy test is from the pituitary LH, there is less cause for concern. However, if her positive pregnancy test is due to choriocarcinoma, she is in trouble, because choriocarcinoma is a much more difficult tumor to cure than is dysgerminoma.

At laparotomy we found a small, normal uterus and left tube. Her left ovary was a rudimentary streak gonad. The right gonad was replaced by tumor and the cul-de-sac contained tumor which covered a large portion of the anterior surface of the sigmoid colon. A mass 8 cm. in diameter was present in the rectal-vaginal septum slightly to the left of the midline. Since total excision of the tumor was impossible, we did not attempt to remove this larger mass. We did a subtotal hysterectomy, and left oophorectomy. A total hysterectomy was not done because tumor from the cul-de-sac extended up onto the posterior surface of the cervix and we didn't wish to suture tumor into her vagina. Dr. Boley, would you present the pathological findings?

Dr. J. O. Boley (Pathologist): The uterus weighed 40 grams. The gonad on the left side measured 2.0 x 1.0 x 0.6 cm. The Fallopian tube appeared perfectly normal and circled over the gonad. Hemorrhagic tissue on the right side of the uterus probably represented remains of the original tumor.

Microscopically, the tumor has a somewhat lobular pattern with fibrous septa which vary from delicate to coarse and which contain varying but generally small numbers of lymphocytes. Larger cells forming nests between the septa have fairly uniform vesicular nuclei, prominent nuclear membranes, and prominent nucleoli. Though mitoses are present, they are not frequent. It is my impression that this tumor is a dysgerminoma. A section of a tumor implant from the surface of the bowel shows the same tumor infiltrating between the serosal fat cells. The main tumor mass on the broad ligament shows some inflammation, a great deal of hemorrhage, and again, cells with the appearance of germinal cells forming nests between septa.

The left ovary is interesting. In one area, there are bodies which are ovoid to round and are surrounded by stroma. The nuclei tend to be located at the periphery of the cells forming these bodies, and in most instances the cells are radially oriented. Many of these gland-like structures contain material in the center which has a scalloped edge. In some areas a pseudotubular pattern is present, but true tubules are not found. Small nests of acidophilic cells which have fairly uniform nuclei and a bland appearance are scattered about in the stroma between the round structures. We could not identify any crystalloids of Reinke in the cytoplasm of these cells but they have the appearance of Sertoli cells. This pattern is somewhat reminiscent of a testicle which has undergone atrophy or which has not developed. Around the periphery of the gonad, there is rather typical ovarian stroma. Nests of small cells with the appearance of hilar cells are present in the ovarian cortical stroma. One small

fibrin-like eosinophilic mass which may or may not represent an old corpus albicans is present, but no primordial follicles are seen. This suggests the possibility that this ovary may have functioned at one time.

Dr. Rockwell: Dr. Boley, would you call this gonad an ovo-testis?

Dr. Boley: I don't believe I would call it an ovo-testis. Dr. Mantz was interested in this case and sent the slides to Dr. Scully in Boston. It is my understanding that Dr. Scully called it a "sex cord mesenchymoma with some Leydig cell differentiation," which is another way of saying gonadoblastoma. Dr. Scully felt that the tumor of the right ovary should be called a "germinoma" since we do not know the nature of the gonad from which it arose.

The endometrium is in some places cystic and in general gives the appearance of postmenopausal retrogressive hyperplasia. Because of this endometrial pattern, I would say that this girl has probably had some estrogen effect at some time in her life. I cannot say she has ovulated as I cannot be sure that the gonadal structure is a corpus albicans; it is only suggestive.

Dr. Rockwell: Did you see anything that looked like choriocarcinoma?

Dr. Boley: No. All the tissue available to us showed a fairly uniform pattern typical of dysgerminoma. This does not exclude the possibility that somewhere in the tumor remaining in the patient there is a choriocarcinomatous element.

Dr. Rockwell: Dr. Cowan, would you care to discuss the radiation treatment of this tumor?

Dr. George Cowan (Radiotherapist): Yes, but first I would like to ask: when you explored the abdomen, did you find any involved paraortic lymph nodes?

Dr. Rockwell: We carefully examined both lateral pelvic walls and the para-aortic area and removed the largest palpable nodes, which were located at the aortic bifurcation. They were reported as showing only reactive hyperplasia.

Dr. Cowan: One thing that should be considered in this patient is the possibility of bilateral lymphangiographic studies. I suggest this because of the possibility that lymphatic spread with involvement of the para-aortic lymph nodes can account for continuing positivity of the pregnancy test in the face of treatment of the pelvic tumor.

The lymphatic drainage from the ovary is the same as that from the testis, and the dysgerminoma is the counterpart of the seminoma. They behave in the same manner, and are both highly radio-sensitive. In cases of pure seminoma where there are no radiographically or clinically demonstrable metastases, radical radiotherapy results in 85 to 90 per cent cure.

The same should logically be true of the dysgerminoma. The problem in the female, however, is that the tumors are usually not discovered until late when local extension and lymph node metastases have already occurred, as in this patient. The prognosis at this stage of the disease is, of course, much worse. Nevertheless, knowing the radiosensitivity of this tumor, there is little choice but to treat it radically.

The method of treatment is to radiate the entire pelvis and the para-aortic chain of lymph nodes to the level of the diaphragm. This is a large volume of tissue to radiate and the tumor is very sensitive to radiation, so one expects a lot of tissue necrosis with systemic side-effects, notably nausea, anorexia and leukopenia. For this reason, the treatment is started slowly. We try to radiate the whole tumor-bearing area over a period of four to five weeks and with a total dose of 2,500 to 3,000 rads, utilizing Co⁶⁰. If at a later date, lung metastases or other discrete metastases appear, it is justified to radiate them on account of their radiosensitivity. I believe that this patient's chances of cure are not better than 40 per cent.

Dr. Rockwell: I did pelvic examinations on this patient once a week following the initiation of the radiation therapy. After one week's treatment, the tumor was approximately one half its original diameter and very soft and cystic feeling. Two weeks later no tumor could be palpated.

It has been relatively recently that dysgerminomas have been recognized as a histological entity, so a lot of the discussion concerning dysgerminomas in the 1930's included also some embryonal carcinomas. This has made the survival figures from the 1930's and before somewhat dismal. More recent figures, however, including only dysgerminomas show a 90 per cent five-year survival rate for cases in which the tumor has not spread beyond the ovary. This patient's tumor, however, is very extensive, and this is the reason for Dr. Cowan's guarded prognosis.

During radiation therapy, we continued to run pregnancy tests and they have remained minimally positive. She will return approximately one month following treatment at which time another pregnancy test will be run. If it is still positive, we will start her on estrogens and have her return again in one month at which time another pregnancy test will be done. If, in fact, we can inhibit the positive pregnancy test by exogenous estrogen administration, we will be hopeful, though with no real assurance, that it is pituitary in origin and that no choriocarcinomatous elements are present.

Addendum

The patient was seen one month following radiation treatment and at that time the pregnancy test

was still positive. She was then placed on estrogen therapy and when seen one month later her pregnancy test was negative.

Student Thesis

(Continued from page 288)

been analyzed clinically and pathologically. The concept of foamy macrophages has been discussed from the standpoint as an aid to establishing the diagnosis of adenocarcinoma of the endometrium in well-differentiated lesions. It is believed that the presence of these cells in endometrial sections is strongly suggestive of cancer. An incidence of 47.4 per cent of our cases containing foam cells has been reported. The cases were also analyzed as to degree of differentiation. About two thirds of our cases were classified as well-differentiated or moderately well-differentiated lesions. Fourteen per cent were classified as adenoacanthomas and survival statistics for this group were reported. The incidence of uterine leiomyomata in association with endometrial carcinoma was found to be twice that of the general female population. The significance of ovarian cortical stromal hyperplasia as possibly related to endometrial carcinoma is discussed. Our study reveals that 59 per cent of the ovaries examined had areas of cortical stromal hyperplasia. The average age at diagnosis in our series was 62.95 years. Menopause occurred at the average age of 49 years. The presenting complaint in all cases was irregular or abnormal vaginal bleeding. The average duration of symptoms was 14 months. Twenty-one per cent of our patients had never been pregnant, while 28.8 per cent were nulliparous. The triad of conditions, obesity, diabetes, and hypertension, was found with considerable frequency among our patients. The average weight was 178.5 pounds. Fully 67 per cent of the patients were hypertensive, and 22 per cent were diagnosed as having diabetes mellitus. Thirty-one per cent revealed a positive family history of cancer. The theory of exogenous estrogenic hormone therapy and its relationship to fundal carcinoma is discussed. Finally, the survival statistics which are available at this time are presented. Our corrected five-year survival rate is 64.2 per cent.

Although a great deal of information is known about adenocarcinoma of the endometrium, there are still a few very important problems in this area yet to be solved.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

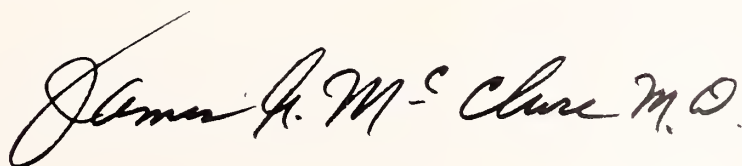
The President's Message

DEAR DOCTOR:

As the days finally arrive and the consumation of many years preliminary training for the job of President of the Kansas Medical Society is at hand, this humble member is a little "shaky in his boots." I realize the many problems that have confronted our Society in the past, but somehow the problems of the present and future loom up like giants. Let us prayerfully hope that the wisdom and judgment of our members both individually and collectively will be sufficient in meeting the problems of the future.

Again we are indebted to our Wichita colleagues for an outstanding meeting. The tireless efforts of the Sedgwick County group has again paid off handsomely. May we add our own personal "Well done to all hands."

Sincerely,

A handwritten signature in cursive script that reads "James H. McClure M.D.".

President





Personalities—IN KANSAS MEDICINE

Dr. and Mrs. G. E. Kassebaum, El Dorado, flew to Rio de Janeiro, Brazil, in February and from there traveled to Rio Verde for service in a Presbyterian mission station. Dr. Kassebaum served as surgeon in the hospital there and Mrs. Kassebaum assisted in the recreation programs of the mission.

John F. Benage, Fort Scott, and **Gordon E. Maxwell**, Salina, were installed as Fellows of the American College of Obstetricians and Gynecologists at the annual meeting of that organization, held in Chicago in early May.

Among the speakers at the annual spring board meeting of the Kansas Tuberculosis and Health Association, held in Topeka in March, were **I. S. Kwak**, Norton; **Frank Trump**, Ottawa; and **William E. Ruth**, Kansas City.

W. W. Richardson, Salina, director of the Central Kansas Mental Health Center, was the guest speaker at a meeting of clergymen and physicians from nine central Kansas counties. Depression and the inter-relationship of medicine and religion were the topics of the meeting held in Salina in March.

Free diagnostic clinics for crippled children were recently held in Belleville and Pratt. The clinic in Belleville was conducted by **Spencer C. McCrae** of Salina and **G. Bernard Joyce** of Topeka. **Cline D. Hensley** and **H. O. Marsh**, both of Wichita, were in charge of the clinic at Pratt.

A panel of Clay Center physicians discussed the practice of medicine and related fields in a program arranged by the Lions Club of that city in March. Participating in the panel discussion were **S. A. Anderson**, **G. B. McIlvain** and **Bruce McVay**.

A symposium on arthritis was held in Dodge City in April. Diagnosis and medical treatment were discussed by **Morgan Stockwell**, and the use of x-ray in diagnosis and surgical treatment were presented by **Carl Zackarias**. Both physicians are from Dodge City.

Raymond L. Gench has announced his retirement after 37 years of practice in Fort Scott. Dr. and Mrs. Gench will move to Carmel, California, in the near future.

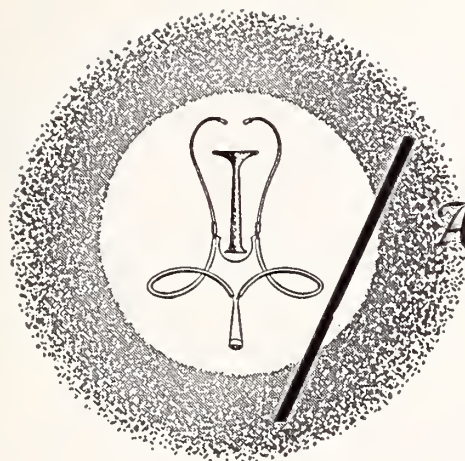
Dr. and Mrs. H. L. Collins, Beloit, attended the International Academy of Proctology meeting in Miami, Florida, in March.

C. Frederick Kittle, Kansas City, has been named professor of surgery and chief of thoracic and cardiovascular surgery at Chicago University. The appointment was effective the first of April.

Robert A. Haines, director of the Division of Institutional Management, Kansas State Board of Social Welfare, delivered the keynote address at the first annual conference on Careers in Mental Health held at Larned State Hospital in April.

"Simplify Your Way of Living" was the theme of a conference held in Pittsburg in April. Appearing on the program were **Robert W. Friggeri**, Girard; **Robert L. Obourn**, Topeka, and **Howard R. Elliott** and **George W. Pogson**, both of Pittsburg.

Robert M. Daniels recently moved from Valley Center to Wichita where he has accepted a position as director of emergency room services at a Wichita hospital.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

JUNE

- June 5-7 First International Congress on Smoking and Health, New York Hilton Hotel, New York City. Registration forms and information are available from the Congress office: Overseas Press Club, 54 West 40th St., New York City.
- June 13-16 Annual convention, Catholic Hospital Association, Cleveland Convention Center, Cleveland, Ohio. Contact: John C. Henry, The Catholic Hospital Association, 1438 S. Grand Blvd., St. Louis 63104.
- June 13-16 Spring Clinics of Children's Hospital, Denver. Advanced Registration. Fee: \$20. Write Joseph Butterfield, Children's Hospital, Denver.
- June 17-18 American Rheumatism Association, Denver Hilton Hotel, Denver. Write: Margaret M. Walsh, Exec. Sec., 1212 Avenue of the Americas, New York 10038.
- June 26 Annual AMA-ASHA Preconvention Session on School Health, Palmer House, Chicago. Write: Department of Health Education, AMA, 535 N. Dearborn, Chicago 60610.
- June 26-30 115th annual convention of the American Medical Association, Chicago. The Scientific Program will be at McCormick Place and the House of Delegates will meet at the Palmer House.

JULY

- July 10-15 Annual Conference of the American Physical Therapy Association, Biltmore Hotel, Los Angeles. Write: Helen J. Hislop, Ph.D., Dir. of Conference Services, American Physical Therapy Association, 1790 Broadway, New York 10019.
- July 15-16 Annual Rocky Mountain Cancer Conference, Brown Palace Hotel, Denver. Write: The Rocky Mountain Cancer Conference, 1809 E. 18th Ave., Denver 80218.

POSTGRADUATE COURSES

University of Colorado:

- July 11-14 *Ophthalmology* (Estes Park)
- July 18-23 *Annual General Practice Review*
- July 27-29 *Dermatology* (Aspen)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- July 25-29 *Interpretation and Therapy of Cardiac Arrhythmias*, Marriott Motor Hotel

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

We have discussed recently the marked influence of Labor in the present Congress. Let us be more specific.

In the House of Representatives are 58 new Democratic Congressmen from all parts of the country who rode to victory on Johnson's coattails. Most are from marginal districts or from normally Republican districts. They vote in a block for Administration bills because of their gratitude to President Johnson.

Let us look at several bills and see by what margins they were passed:

Aid to Appalachia program	257 to 165
Federal Aid to Education	263 to 153
Medicare (to recommit)	236 to 191
Rent Subsidy for the "poor"	208 to 202

It is easily seen that if these 58 were of the more moderate stamp, and instead of voting for the Administration, they voted against it, all of these bills would not have passed.

These are the districts in which AMPAC and KaMPAC will be working. We need better men who will not submit to a "rubber-stamp" Congress. If this is not done, our government will become a one-man show, the man who is the occupant of the White House.

You need to inform yourself politically and to become a member of KaMPAC.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Along The BOOKSHELF

Recent Acquisitions

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Becker, Bernard and Shaffer, R. N. Diagnosis and therapy of the glaucomas. 2d ed. Mosby, 1965.

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Brodeur, A. E. Radiologic diagnosis in infants and children. Mosby, 1965.

Coffey, Cecil and Roth, Don. Hospital press relations. . . . Hospital Publications, 1965.

Davenport, H. W. Physiology of the digestive tract. . . . 2d ed. Year Book, 1966.

Dorfman, Wilfred. Closing the gap between medicine and psychiatry. Thomas, 1966.

Drug and social therapy in chronic schizophrenia. Edited by Milton Greenblatt *et al.* Thomas, 1965.

Goodman, L. S. and Gilman, Alfred, eds. The pharmacological basis of therapeutics. . . . 3d ed. Macmillan, 1965.

Guntheroth, W. G. Pediatric electrocardiography: normal and abnormal patterns. . . . Saunders, 1965.

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Book REVIEWS

PRINCIPLES OF CHEST ROENTGENOLOGY, by Benjamin Felson, M.D., Aaron S. Weinstein, M.D., and Harold B. Spitz, M.D. W. B. Saunders Company, Philadelphia, 1965. 221 pages, illustrated. \$.600.

This programed text dealing exclusively with chest x-rays follows the sound Socratic principles of programed learning and is neither over-simplified nor over-complicated and is downright humorous at times. The technique of examination as well as lobar and segmental anatomy are considered in detail.

Various signs that are valuable in interpreting chest films, and chapters dealing with the pleural spaces and the ribs are contained in this informative manuscript.

Each subject is covered thoroughly. The authors fully accomplished the intent. As a resident in radiology many years ago, I would have welcomed a programed text of this type as a jumping off point to the learning experience in basic chest interpretation.

This book is a must for residents of radiology or for anyone who interprets chest x-rays and is of value for the family physician who only occasionally sees an x-ray of the chest. Each will find this a most rewarding, pleasant, and relaxing experience. Dr. Felson's superb humor is used just enough to keep one interested.—R.C.L.

THE MASK OF SANITY, by Hervey Cleckley, M.D. C. V. Mosby Company, St. Louis, 1964. 510 pages. \$9.75

This book gives no easy answers to a confusing group of patients. But, it will help you to understand these strange and puzzling individuals.

Have you run up against the man who fights,

brawls and roams from job to job? Or steals, lies and drinks? Or lives in sin and gets arrested many times for petty theft? Who cheats, but has a winning way of making friends? Perhaps he can't be trusted to keep up family obligations, but you like him.

No one diagnoses these people by their looks or physical findings. The physician must know their behavior plus the ups and downs of their lives. For, they never fit into the life of a community, but cannot be judged insane. Most do not commit major crimes, just the minor breaking of the law. In fact, their ability to get out of the usual legal punishments distinguish them from the seriously sick individual. Nor does such a person understand himself because, as he sees it, he is no different from others.

This book will help you as you tangle with these poor souls. As Cleckley points out, even the psychiatrists can't decide what to do with them and will vacillate between calling them insane and sane. Although you may not accurately know what to do, you will be a lot easier and vastly more comfortable with yourself when they seek your help.—J.C.

SYNOPSIS OF CARDIOLOGY, by William I. Geffer, M.D., Bernard H. Pastor, M.D., and Ralph M. Myerson, M.D. The C. V. Mosby Company, St. Louis, 1965. 877 pages illustrated. \$9.85.

I tried to read this book from cover to cover. I gave up. So, I took it to the office, kept it on my desk and used it as a reference. The *Synopsis of Cardiology* is encyclopedic. Chuck-full of information, it covers the field of cardiology in all phases. The problems of heart disease can be quickly located, looked up, checked out, and applied with little loss of time. It helped me in a number of tight places to make a diagnosis and give treatment.—J.E.C.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in January, 1966 and 1965

<i>Diseases</i>	<i>1966 January</i>	<i>1965 January</i>	<i>January, 5-Year Median, 1962-1966</i>
Amebiasis	1	—	1
Aseptic meningitis	—	2	1
Brucellosis	—	—	—
Diphtheria	—	—	—
Encephalitis, prim., infect.	—	3	2
Encephalitis, post-infect.	—	1	*
Gonorrhea	271	256	266
Hepatitis, infectious	21	55	55
Meningococcal meningitis	1	2	1
Pertussis	1	4	2
Poliomyelitis	—	—	—
Rheumatic fever	—	—	—
Salmonellosis	7	24	10
Scarlet fever	10	17	17
Shigellosis	17	5	9
Streptococcal infections	212	381	180
Syphilis	88	73	85
Tinea capitis	4	7	7
Tuberculosis	13	22	20
Tularemia	—	1	1
Typhoid fever	—	—	—

* Statistics on 5-year median not available.

REVISION OF POSTAL REGULATION AFFECTS COMMUNICABLE DISEASE CONTROL

The Post Office Department has recently issued a revision in *Postal Procedures* which may prove very helpful to state and local public health programs in keeping up with infectious transients. Postmasters are now authorized to furnish health department representatives with current and forwarding addresses of persons infected with or exposed to contagious diseases.

Attention is invited specifically to *Postal Procedures*, Section 311.4, "Inquiries and Complaints: Providing Information," sub-paragraph .44, which states:

"44 State and local public health officials may request in writing from post offices the current or forwarding addresses of persons who, the officials state, are infected with or were exposed to contagious diseases. Postmasters shall furnish such addresses to properly identified state or local

public health officials upon receipt of such written request."

This means that whenever a person with tuberculosis or any other communicable disease moves and leaves a forwarding address with a post office, his new address may be obtained from the post office by state or local public health officials.

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SPECIAL NOTICE

To the JOURNAL:

I would like to have you publish in the JOURNAL . . . a plea for help for a Kansas doctor . . . working . . . with the Special Forces in Viet Nam. . . . Captain Russell L. Hunter, a graduate of KU Medical Center, . . . has been there since July, 1965. Captain Hunter is taking care of our American Special Forces who are fighting in the area as well as hundreds of Montagnard soldiers. He operates a small hospital with approximately 40 beds . . . used for the care of the Montagnard soldiers and . . . civilians. . . . Captain Hunter is working under the most primitive conditions. I have been in touch with him ever since he was sent to Viet Nam and have supplied him with drugs and some equipment. . . . Apparently the equipment which is issued to him by the Armed Forces is limited. . . . One of the things he could use most is a hand operated Dermatome. I know there are quite a number of surgeons in Kansas who have switched from hand operated Dermatomes to electric Dermatomes. . . .

. . . perhaps if we were to put a note in the JOURNAL . . . we might find somebody who has a hand operated Dermatome plus blades in operational condition which he might be willing to donate to Captain Hunter. . . . His address is:

Captain Russell L. Hunter 05416197
Det. C-2 5th S.F.G. (ABN) 1st S.F.
APO San Francisco 96295

. . . Captain Hunter will leave the Dermatome at the hospital when he returns home after completion of his tour of duty so that the following medical officer will have this for his use.

Your help will be greatly appreciated.

Sincerely,

CARL K. ZACHARIAS, M.D.
Dodge City Medical Center
2020 Central Avenue
Dodge City, Kansas

(Any who are willing to contribute such a dermatome should communicate with Dr. Zacharias to learn how to send the apparatus, and also to avoid sending more than can be used.—Editor)

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Chandler S. Bethel, M.D.
444 North Pershing
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Robert M. Brown, M.D.
128 S. Chestnut
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1900 E. Ninth
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3333 E. Central, Suite 204
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314 Oregon
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Holton, Kansas

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The Month in Washington

From the Washington Office American Medical Association

(The following summary of Washington news was prepared and received from the Washington office of the American Medical Association.)

The Johnson administration wants to prohibit manufacturers from mailing physicians free prescription drug samples except when specifically requested. The administration also has proposed that door-to-door distribution of samples of over-the-counter drugs be banned.

The proposals are included in new drug legislation that would expand the authority and responsibilities of the Food and Drug Administration in policing drugs.

The legislation would have Congress find that:

(1) the mass of unsolicited samples of prescription drugs supplied to licensed practitioners by manufacturers and distributors through the mails and otherwise has led to large-scale discarding and other disposal of unwanted samples which are finding their way into the hands of persons who scavenge and repack such drugs and sell them to pharmacists for dispensing on prescription in the same manner as regular stock of drugs;

(2) children have obtained carelessly discarded samples;

(3) the dispensing or sale of a prescription drug sample to a patient for a fee without identification of the drug as a sample is a deceptive practice; and

(4) the unsolicited distribution of nonprescription sample drugs directly to householders lacks minimum safeguards which would be involved in the sale of the drug in a pharmacy or other place of business.

Labels would have to read: "SAMPLE DRUG. FEDERAL LAW PROHIBITS ANY CHARGE OR FEE FOR THIS DRUG."

Under the legislation, the FDA would be authorized to require records and reports of adverse reactions and efficacy on all drugs now being marketed. Dr. James L. Goddard, Food and Drugs Administration commissioner, already had ordered a review of drugs cleared before 1962. Another provision of the legislation would "require certification of all drugs whose potency and purity can mean life or death to a patient," thus extending the law which now applies to insulin and antibiotics.

The Pharmaceutical Manufacturers Association expressed doubt that the FDA could carry out such an additional responsibility. PMA President C. Joseph Stetler said it seems "unwise to propose new areas of

responsibility for an agency which has not yet proven its ability to administer" its present programs. Stetler added:

"The industry has said before that no amount of labeling can protect an individual who refuses to protect himself by ignoring his doctor's orders or the directions on the label of his medicine. Even when manufacturer and patient do everything right, an adverse reaction still is possible and medical science probably never will find a way to make it otherwise.

"There is no such thing as 'miracle legislation' which automatically produces a drug utopia."

In a speech highly critical of the ethical drug industry at the annual meeting of the PMA, Goddard talked of irresponsibility. He said "too many drug manufacturers may well have obscured the prime mission of their industry: to help people get well." He said he had been shocked by the quality of some of the data on new drugs submitted to the FDA. There also "is the problem of dishonesty in the investigational drug stage," he said.

Goddard further charged that some drug advertisements "have trumpeted results of favorable research and have not mentioned unfavorable research; they have puffed up what was insignificant clinical evidence; they have substituted emotional appeals for scientific ones."

Stetler said after the speech that he and his colleagues feared the talk "might, unfortunately, be interpreted as an indictment of the entire drug industry, because of its overemphasis on isolated instances, without acknowledging the integrity and responsibility which our industry has consistently demonstrated."

"It is an unassailable fact," Stetler said, "that the scientific attainments and standards of performance of the American prescription drug industry have provided an immeasurable benefit to the improvement of health and the prolongation of life."

* * *

Officials estimate that the hospitalization part of medicare will cost about \$2.3 billion in the first year of the program which starts July 1.

Benefit payments under Plan B, the medical part of medicare, are estimated at \$765 million for the first year. Premium collections—\$3 per person per month—are estimated at \$550 million, which will be matched by the federal government.

The Kansas Medical Society—1965-1966

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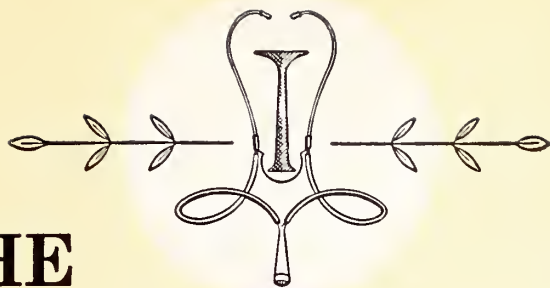
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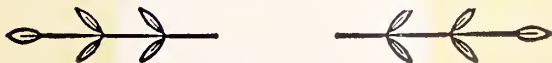
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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LX



Dandelions!

Dandelion Green Bezoar Following Antrectomy and Vagotomy—Case Report

JAN M. COLLINS, M.D., and

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MANY KINDS OF PHYTOBEZOARS including persimmons, citrus fruit pulp, sauerkraut, coconut and other substances have been reported following partial gastrectomy.¹⁻⁹ In most instances these substances have entered the intestine and resulted in small gut obstruction. An unusual bezoar, composed of dandelion greens, has been seen in a patient following antrectomy and vagotomy and is believed worthy of this report.

Case Report

This 46-year-old white female housewife entered the University of Kansas Medical Center on April 14, 1964, complaining of severe constant pain in the left upper quadrant which began following the evening meal of hamburger. She had also experienced nausea and epigastric fullness. There had been no cramping, vomiting, fever, diarrhea or constipation. Eighteen days previously, the patient had undergone an antrectomy and vagotomy with antecolic, short-loop, full stomach width gastrojejunostomy for recurrent bleeding duodenal ulcer. The early postoperative course was uncom-

Many kinds of phytobezoars have been reported to occur following partial gastrectomy. This case report is that of a 46-year-old housewife who developed signs of epigastric fullness 18 days following antrectomy and vagotomy after eating a large quantity of dandelion greens. Repeated gastrointestinal series confirmed the presence of a large gastric food bolus. The bolus was successfully removed by repeated gastric lavage without resorting to operation. Incomplete mastication of the greens, diminished gastric secretions, and decreased gastric motility were believed to be important causative factors. Reports of such previous cases have not been found.

plicated and recovery had apparently been satisfactory until this readmission. The patient had observed no dietary restrictions and for luncheon had eaten a large quantity of "wild greens," which were, in retrospect, inadequately masticated.

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Examination showed the patient to be in no acute distress. An upper dental prosthesis was present. The abdominal examination showed a healing midline surgical scar. There was no tenderness, distention or hyperperistalsis. The remainder of the physical examination was not remarkable.

Abdominal roentgenograms showed an unusual granular shadow in the left upper quadrant which was interpreted to be food in the stomach.

The passage of a nasogastric tube caused the patient to vomit repeatedly. The vomitus contained limp, green, leafy material which occluded the nasogastric tube. Upper gastrointestinal series two days after admission revealed a gastric mass to which barium clung which was interpreted to be a bezoar or food bolus (Figure 1). The mass could be surrounded by the opaque media. The barium flowed promptly through the gastrojejunostomy without evident obstruction or local lesion. Postemptying films showed the remaining unusual mottled appearance in the stomach.

Mineral oil was instilled into the stomach followed by repeated gastric lavage using saline through a large feeding tube. Small amounts of green leafy material were aspirated with difficulty. A repeat barium-upper gastrointestinal study four days after admission showed the bezoar with little improvement. Papain (Caroid) was instilled into the stomach between the repeated lavages. The patient experienced little discomfort, and the abdomen remained soft. Intravenous fluids were used for five days when full liquid diet was begun as gastric lavage continued.

The mass was eventually evacuated without resorting to operation. Upper gastrointestinal roentgenograms eight days after admission showed that the bezoar had been eliminated and she was dismissed. She has subsequently been relatively symptom-free, complaining of only mild epigastric fullness after meals on occasion.

Comment

This case is unusual in that it is the first reported example of a postgastrectomy bezoar composed of dandelion greens. It is also unlike most of the reported bezoars after gastrectomy in that the bolus remained in the stomach rather than passing into the intestine with resultant small bowel obstruction. The case is also interesting in that it was treated by non-operative means. Successful non-operative management of postgastrectomy sauerkraut bezoars producing intestinal obstructions has been reported.⁷ Insufficient chewing of fibrous stringy foods has apparently been an important factor in the formation of those boli as well as the one reported here, and has also received emphasis by Davies and Lewis.²

Other causative factors which must be considered are: (1) The decreased gastric acidity from removal of both antral and vagal factors; (2) Reduced gastric motility and mechanical mixing action induced by complete vagotomy.

Treatment of most gastric bezoars is surgical removal. The relatively short duration of this lesion



Figure 1. Upper gastrointestinal study two days after ingestion of dandelion greens. The gastric fundus contains a large food mass which could be surrounded by barium. The barium readily passed through the gastrojejunostomy.

and apparent absence of caking permitted its disintegration by mechanical means without operation.

In summary, a patient who developed a gastric bezoar of dandelion greens following antrectomy and vagotomy is presented. Etiologic factors of insufficient mastication, and reduced gastric secretion and motility were believed important. The mass was eliminated by repeated lavage without resorting to operation.

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Calcium and Cancer

Hypercalcemia in Malignancy Simulating Hyperparathyroidism

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HYPERCALCEMIA is becoming a more frequently recognized entity. For many years hypercalcemia was thought of only in connection with hyperparathyroidism and its clinical symptoms were overshadowed by renal and bone manifestations. In the last 30 years, however, clinicians have become aware of hypercalcemia as a complication of malignancy, sarcoidosis, idiopathic hypercalcemia of childhood, Vitamin D intoxication, milk-alkali syndrome, and less frequently as a complication of Addison's disease and myxedema.

The patient presenting with hypercalcemia does not manifest distinctive signs and symptoms; therefore, recognition comes only with an awareness of the disorder and with a high index of suspicion. The patient presents with polyuria, polydipsia, weakness, nausea, vomiting, lassitude and, frequently, mental confusion. These patients are not infrequently misdiagnosed as psychoneurotic because of their bizarre mental aberrations. On physical examination they appear dehydrated and have marked hypotonia. They frequently have a tachycardia.

Hypercalcemia is a serious complication of malignancy. It has been reported to occur in nine per cent of patients with neoplastic disease.¹ Hypercalcemia has been associated with primary tumors in every organ system,²⁻¹¹ but it most commonly occurs in carcinoma of the kidney, lung, and breast, and in lymphoma. Bone involvement by tumor need not be present.

In this communication a series of 21 cases of hypercalcemia associated with malignancy is reported. It is our purpose to discuss changes in tubular reabsorption of phosphate, and the effect of treatment with corticosteroids, sodium versenate (EDTA) and antimetabolites.

Methods

Tubular reabsorption of phosphate (TRP) was determined after phosphate loading with one quart of milk a day. Urine collections and serum specimens

were obtained before patients were treated with drugs or hormones. Phosphate was determined by the method of Fiske and Subbarow.¹² A modification of the alkaline picrate reaction was used for creatinine determinations.¹³ The measurements were made on 24-

Twenty-one cases of hypercalcemia in malignancy have been presented. Tubular reabsorption of phosphate was measured in 12 cases. TRP was below 85 per cent in 11 cases, and below 80 per cent in 10 cases. None of the patients responded to corticosteroid therapy by a lowering of serum calcium. Mechanisms for these observations have been discussed. The evidence indicates that hypercalcemia in neoplastic disease is due to production of a parathormone-like substance by tumor tissue.

hour urine collections. TRP was calculated by the formula:

$$\%TRP = 1 - \frac{\text{Serum Cr} \times \text{Urine P}}{\text{Urine Cr} \times \text{Serum P}} \times 100.$$

Serum and urine calcium were determined by the complexone method on the autoanalyzer. Normal values by this method are 9-11 mg./100 cc.

Results

A summary of clinical data for each patient is shown in *Table 1*. Eight patients had generalized bone metastases. Presenting complaints upon admission to the hospital are presented in *Table 2*. Polydipsia and polyuria were observed in 12 of the patients, confirming the observation of Lucas.⁹

Tubular reabsorption of phosphate was determined in 12 cases. The results are shown in *Table 3*. TRP was less than 85 per cent in 11 of the 12 cases, and less than 80 per cent in 10. The normal per cent TRP in our laboratory is above 80. Values below 85 per cent arouse suspicion of hyperparathyroidism, and values below 80 per cent are definitely abnormal.

* Fellow in Metabolism, USPHS Traineeship Grant # T1 AM5051-09.

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TABLE 1
SUMMARY OF LABORATORY AND CLINICAL FINDINGS OF THE 21 PATIENTS PRESENTED

Case No.	Serum		TRP %	Bone Metas. at Autopsy	Primary
	Calcium MG. %	Phosphorus MG. %			
1	12.2	2.5	83.5	None	Lung, left, sq. cell
2	13.2	2.0		None	Lung, right, adenoma
3	14.6	3.4		None	Lymphoma
4	18.6	2.7	70	Generalized	Breast
5	13.0	1.2	72	None	Lung, sq. cell
6	11.2	2.2	80	None	Lung, rt., sq. cell
7	12.2	2.2	50.6	None	Thyroid, papillary and follicular
8	14.6	2.5	68.5	None	Lung, epidermoid
9	11.6	4.1	74.3	None	Lung, sq. cell
10	15.6	4.3		Rib	Lung, sq. cell
11	13.8	3.7		Generalized	Breast
12	15.8	4.6		Generalized	Multiple myeloma
13	11.6	2.7		8th rib	Lung, sq. cell
14	15.8	2.2	72	None	Unknown, liver biopsy adenocarcinoma
15	18.8	2.5		Generalized	Breast, adenoma
16	13.2	1.9	71.8	Generalized	Breast
17	13.0	2.0	95	None	Pancreas
18	12.0	3.4		None	Kidney
19	16.0	4.3		Generalized	Breast
20	12.0	2.0	70	None	
21	12.2	2.7	65	Rib	Lung

Nine patients received corticosteroids in the form of Hydrocortisone 60-100 mg./day, or Prednisone 40 mg./day in an attempt to lower serum calcium levels (*Table 4*). The only notable result was a rise in urinary excretion of calcium while serum calcium levels remained unchanged (*Figure 1*).

Six patients were given sodium versenate by intravenous infusion in an attempt to lower ionized serum calcium. This was used as an emergency measure in patients with neurological symptoms of confusion, hypotonia or unconsciousness, or in acute cardiac arrhythmias. Five of these patients improved temporarily

but lapsed into their previous state as soon as the infusion was discontinued. Albright and Reifenstein¹⁴ point out that the critical level of serum calcium is 17 mg./100 ml.; beyond this death occurs from calcium intoxication.

Patients numbers 4, 11, and 16, had carcinoma of the breast with generalized bone metastases. Patient 4 became normocalcemic after oophorectomy; patient 11 after nitrogen mustard therapy; and patient 16 had hypercalcemia precipitated by testosterone therapy and her serum calcium returned to normal after this therapy was discontinued. Patient 7, who had papillary and follicular carcinoma of the thyroid, reverted to a normal serum calcium after surgical removal of the tumor. Patient 5, who had carcinoma of the lung, underwent parathyroidectomy without subsequent change in serum calcium. TRP was repeated in patients 4 and 16 after serum calcium returned to normal. In each case the TRP had returned to normal with values of 88 and 86 per cent.

Discussion

The abnormally low TRP in patients with hypercalcemia of malignancy is frequently dismissed as being secondary to renal disease due to hypercalcemia *per se*. However, Friis¹⁵ has shown that TRP values

TABLE 2
PRESENTING COMPLAINTS ON ADMISSION
TO HOSPITAL

Symptom	No. of Cases
Nausea	8
Confusion	6
Pain	2
Difficulty swallowing	1
Weight loss	3

TABLE 3
CREATININE CLEARANCE AND TUBULAR
REABSORPTION OF PHOSPHATE VALUES
IN 12 OF THE 21 PATIENTS

Patient	Creatinine Clearance cc./min.	TRP %
1	54	83
4	80	70
5	141.4	72
6	70	80
7	14.4	78
8	53.4	69
9	96	74
14	58.4	72
16	25.9	72
17	40	95
20	82	70
21	40	65
Mean		75%
S.D. \pm		7.9

parathyroidism. Others ²¹⁻²⁴ have found this index to be unreliable. Our observations seem to confirm this impression since none of our patients responded to cortisone by lowering of the serum calcium. Even though urine calcium increased greatly during cortisone administration, serum calcium levels remained unchanged, suggesting that bone resorption must have been accelerated. However, definite conclusions about bone resorption cannot be made since fecal calcium excretion was not measured.

Polydipsia and polyuria are recognized manifestations of hypercalcemia⁹ and were seen commonly in our patients. Peterson and Edelman²⁵ have recently shown that increased calcium concentration inhibits the effect of vasopressin on the toad bladder. It is conceivable that the polyuria seen in hypercalcemic patients is due to inhibition of the effect of vasopressin on the renal tubule, causing an inability of the kidney to excrete a concentrated urine.

Hypercalcemia in malignancy is similar to hyperparathyroidism in that TRP is low and serum calcium remains high with corticosteroid administration. Stone¹⁰ postulated three possible mechanisms for hypercalcemia in malignancy. The first mechanism is

are falsely lowered only after the creatinine clearance is below 30 cc./min. The creatinine clearance was, however, below this level in only two of these patients. Gardner, *et al.*¹⁶ did not find abnormally low TRP values in their series of patients with carcinoma of the breast. Since their patients were on diets which excluded milk and cheese, it may be that the TRP was falsely high because of phosphate deprivation as shown by Chambers, *et al.*¹⁷

The cortisone suppression test has been advocated to differentiate between hypercalcemia due to hyperparathyroidism and that due to malignancy, sarcoidosis and Vitamin D intoxication, with the assumption that with the administration of corticosteroids the serum calcium returns to normal in all except hyper-

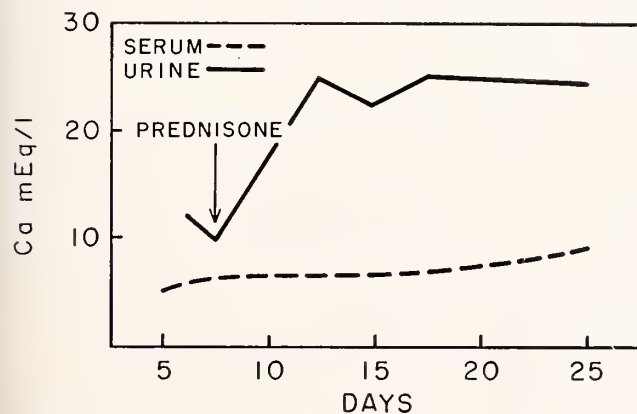


Figure 1. The effect of corticosteroids on serum and urinary calcium in patient Number 9.

TABLE 4
EFFECT OF CORTICOIDS ON SERUM
CALCIUM LEVELS

Patient	Serum Calcium Before Corticoids*	After Corticoids*
1	12.2	—
2	13.2	—
3	14.6	14.6
4	18.6	18.4
5	13.0	18.6
6	11.2	—
7	12.2	—
8	14.6	17.4
9	11.6	15.2
10	15.6	—
11	13.8	—
12	15.8	—
13	11.6	13.4
14	15.8	17.6
15	18.8	—
16	13.2	13.2
17	13.0	—
18	12.0	—
19	16.0	15.6
20	12.0	—
21	12.2	—
S.D.	± 3.3	1.8
Mean	15.2	16.0

* Figures expressed in mg. per cent.

that hypercalcemia is secondary to bone metastases with breakdown of bone matrix and release of more calcium than can be cleared by the kidney. As he indicates, this explanation is inadequate since in many cases no bone metastases can be demonstrated. The second mechanism is that the tumor may produce a Vitamin D-like substance leading to increased calcium absorption from the gastrointestinal tract, an effect which is antagonized by corticoids;^{27, 28} therefore, normalization of the serum calcium would be expected with cortisone therapy. The observed failure of this to occur renders this explanation doubtful. The third mechanism is that the tumor produces a parathormone-like substance. Using immunoassay, Goldberg, *et al.*²⁹ have recently demonstrated parathormone in a renal tumor. It is also conceivable that the tumor could produce a substance which stimulates the parathyroid gland. However, failure of response to parathyroidectomy is against this hypothesis.

The low TRP, failure to respond to corticosteroids or parathyroidectomy, and the presence of hypercalcemia in the absence of bone destruction by metastases strongly suggest that hypercalcemia in malignancy is the result of the production of a parathormone-like substance by tumor tissue.

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Myocardial Perforation . . .

. . . *By a Pacemaker Catheter*

ERNEST W. CROW, M.D.,* *Wichita*

THE BIPOLAR CARDIAC PACEMAKER catheter¹ has become a valuable tool in the temporary treatment of complete heart block and in the preoperative and operative management of permanent pacemaker implantation. The following case is presented to demonstrate an unusual complication occurring with the use of this catheter.

Case Report

A 59-year-old white male was admitted January 6, 1965. For three months he had experienced episodes of hard, slow, pounding of his heart, accompanied by a "faint feeling," lasting from a few seconds to a few minutes. Electrocardiograms in October, 1964, showed intermittent complete atrioventricular block with idioventricular rhythm. No convulsive seizures had occurred. The radial pulse rate was 25 beats per minute, the blood pressure 190/70. There was variability in the amplitude of the first heart sound, and pulsations at a rate of 75 per minute could be seen in the neck veins. No evidence of congestive failure was present. The electrocardiogram showed a complete atrioventricular block with an idioventricular rate of 25 per minute.

On January 11, 1965, after several days of isoproterenol therapy, a No. 5 bipolar pacemaker catheter (United States Catheter Instrument Company) was inserted by way of the right median antecubital vein to a location believed to be the outflow tract of the right ventricle. Slight resistance was met on an attempt to pass it through the pulmonary valve. The catheter was withdrawn and rotated to place it at the apex of the right ventricle, but this did not immediately occur, so the catheter was allowed again to resume its position near the outflow tract of the right ventricle. The catheter was attached to a portable pacemaker and allowed to pace at a rate of 70 per minute. The patient complained that his back muscles were contracting and on examination, massive lumbar muscle contraction could be felt with each pacemaker beat. The voltage of the pacemaker was reduced and the lumbar muscle contractions ceased. Occasionally, during the next 24 hours, it was necessary to manipulate the position of the catheter tip in order to maintain adequate pacing. On January 12, 1965, the patient was taken to surgery for implantation of a permanent pacemaker.

When the pericardium was opened, the cardiac

catheter tip was seen lying free in the pericardial space and was found to have perforated anteriorly through the wall of the right atrium and lay over the anterior surface of the right ventricle with the tip near the

A bipolar pacemaker catheter, penetrating the anterior wall of the right atrium into the pericardial cavity, continued to function adequately as a pacemaker until discovered at the time of surgery 24 hours later.

outflow tract. No blood was found in the pericardial cavity. The catheter was withdrawn into the superior vena cava, no bleeding occurred and sutures were not necessary at the site of catheter perforation. The permanent pacemaker was implanted without further incident.

Postoperatively, the patient did well and has returned to his usual occupation as an aircraft worker.

Discussion

Myocardial perforation during diagnostic right heart catheterization has been reported many times.²⁻⁶ Experienced cardiac physiology teams carefully avoid unusually stiff catheters, excessive manipulation of the catheter, and use great care in the location of the catheter tip prior to high pressure injection of opaque material, in order to avoid this complication.⁷ Inasmuch as the bipolar pacemaker catheter has no lumen, recognition of heart perforation is not as easy as with ordinary catheters, since the finding of an unusual pressure recording, the aspiration of pericardial fluid, or the injection of a small bolus of opaque material cannot be relied upon to document the position of the catheter tip.

The catheter used in this case was wet sterilized, quite flexible and of small size (No. 5). The hard metal tip of the catheter was somewhat bullet shaped, as compared to the tips of larger No. 6 catheters, which we have more commonly used.

The catheter continued to function in spite of its being in the pericardial space, because the parietal pericardium held the catheter tip firmly against the ventricular wall. The lumbar muscle contractions, which occurred prior to reduction of pacemaker

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Mental Retardation—

A Question and Suggestion About Classification

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THE TERM "MENTAL RETARDATION" as it is commonly used and understood in the United States refers to a broad phenomenon indicating unusually slow or arrested rate of mental development as well as slow maturation, learning and social adjustment, expressed and perceived through general intelligence and adaptive behavior. In other words, mental retardation may be interpreted to describe individuals whose mental capability is at the lower end of a distribution curve. At the other or the higher end of the distribution curve will be individuals who will be referred to as "geniuses." This phenomenon is always present in the general distribution of any feature, character or quality, and forms the usual bell-shaped curve of distribution. It has been customary to use intelligent quotient to measure, or rather estimate, the mental capability of an individual. The mean I.Q. of the Americans is placed between 90 and 110, the higher end is probably 160 and the lower end is probably 40 with very few over 160 or under 40.

This same phenomenon of mental retardation may also be the result of some developmental anomalies or diseases of the brain during gestation or in childhood. A majority, if not all, of the severely and profoundly mentally retarded individuals are subjects of developmental anomalies or diseases of the brain; in other words, patients with neurologic affections. To group together patients with specific neurologic diseases and normal individuals at the lower end of the distribution curve is confusing.

The World Health Organization adopts the term "mental subnormality" for this phenomenon which we here call "mental retardation" and differentiates between mental retardation and mental defectives. "The term 'mental retardation' has been used in this report to those whose educational and social performance is markedly lower than would be expected from what is known of their intellectual abilities. When terms are needed to describe conditions in which the mental capacities themselves are diminished as a result of pathological causes, as opposed to environmental causes which may lead to mental retardation, 'mental defect' and 'mental defective' are used."¹

From this quotation, one may infer that the

World Health Organization does not include individuals who are at the lower end of the mental capability distribution curve under "mental subnormality." There are two classes of people under the designation of "mental subnormals"; the "mental re-

"Mental retardation" has been used to "label" the segment of individuals occupying the lower segment of the mental capability distribution curve. The often quoted statement that three per cent of the Americans are mentally retarded should be understood to include this segment, which probably constitutes 90 to 95 per cent of this three per cent, that is approximately five million people.

This phenomenon of the lower segment of the distribution of any human quality, "mental retardation" in this present case, will always be with us. The problem connected with "mental retardation" in this sense may be dealt with by general acceptance of the phenomenon and by finding means to provide these "mentally retarded" individuals with self-sufficiency, self-pride and self-respect.

tardates" and the "mental defectives." "Mental retardates," by the World Health Organization definition, are individuals who have naturally endowed intellectual abilities higher than what the individuals express or exhibit. They are individuals whose potential intellectual abilities are stunted or delayed and whose educational and social performances are lowered. In other words, they are individuals whom we sometimes call pseudoretardates. I would like to propose that the term "mental subnormality" or "mental retardation" to be defined as a phenomenon, which is a normal feature of the individuals at the lower end of the mental ability distribution curve and a symptom of the individuals who suffer from mental defects.

Observations tend to suggest that "mental retarda-

tion," as newly defined here, is a phenomenon and in some forms, need not be a static condition. Neither intelligence nor adaptive behavior is necessarily a fixed quality. An enriched environment, high motivation, mental stimulation and wholesome emotional climate of the home stimulate the full development of innate capabilities and may result in an upward change. Similarly, the lack or absence of such environmental factors may suppress or delay intellectual development and result in a downward change. However, in a given community, culture or nation, the distribution curve of any human quality, including mental capabilities, will always show the upper and the lower ends. We may improve the general intelligence of all the people of the land, but there will still be "geniuses" on the one end and "retardates" on the other end.

Theoretically, it is possible that sometime in the future, through evolution or special education and training, to nurture the innate mental capabilities of human beings, and the general intelligence of Americans may be elevated to a higher degree. The mean I.Q. of Americans may be raised to 130-150 using the present scale of measurement. The upper end of the curve may reach 200 and the lower end 80. By that time no one would be considered mentally retarded according to our present standard of measurement. But individuals on the lower end of the curve with I.Q. between 80-110 (by our present scale) will still find it difficult to compete with their peers whose I.Q. will be between 130-150. To a certain extent, it is probably true that mental retardation has become such an important social problem today because of our complex society. We have entered an industrial and mechanized age which makes more severe demands on the general intelligence of people to adjust to this kind of living. This social problem will find no solution unless we accept the fact that this particular phenomenon will always be with us. The often quoted statement that three per cent of the Americans are retarded may be better understood if we recognize that probably 90 to 95 per cent of this three per cent consists of members in this lower segment of this distribution curve. It is unrealistic to think that we can through education, training or any other means, get rid of this lower segment of the mental capabilities distribution curve. We should be thinking how these people can be educated or trained to become contributing members of the community, to have self respect and pride, and to live as self-sufficient and independent as possible. We should accept them as equal participants in our community life.

Grouping either the "retardates" or the "geniuses" into special groups and taking them out of the general population, will only create problems. In our public schools, the teachers know very well that if

they begin to group together the "more intelligent" students and give them special attention, they are creating troubles for themselves. The teachers learn that they may have to use different methods of instruction for these "more intelligent" students but not to segregate them. However, for years we have segregated the children at the lower end, the "retardates," in state schools, away from the general population, to give them special education. We have hoped that after such special training, they will be able to return to the community and function as the rest of us. We have been disappointed and disillusioned. It is time that we should drop the term "mental retardation" to describe those children at the lower end of the mental capability distribution curve. Thus, "mental retardation" will be understood to be a term describing only a certain symptom suffered by individuals with neurological affections, a symptom which resembles that normal feature or quality seen among individuals at the lower end of the mental capability distribution curve.

If we were to accept this concept, we can see that the present classifications adopted by the American Psychiatric Association and by the American Association on Mental Deficiency, are in need of revision. The APA Diagnostic and Statistical Manual uses the term "mental deficiency" to describe mental retardation which could be representing the lower end of the mental capability distribution curve. "Here will be classified those cases presenting primarily a defect of intelligence existing since birth, without demonstrated organic brain disease or known prenatal cause. This group will include only those cases formerly known as familial or idiopathic mental deficiencies."² The manual uses the term "chronic brain syndrome" to describe the various forms of mental defects associated with congenital cranial anomaly; with disturbances of metabolism, growth or nutrition; with intracranial neoplasm, and with diseases of unknown or uncertain cause. These chronic brain syndromes are mixed with conditions acquired later in life. The mental deficiency classification is divided into *mild*, with I.Q.'s of approximately 70 to 85; *moderate*, with I.Q.'s of about 50 to 70; and *severe*, with I.Q.'s below 50. This is analogous to a medical classification of fever into mild with temperature between 37° and 38° C., moderate with temperature between 38° and 40° C. and severe with temperature over 40° C.

The American Association of Mental Deficiency in *A Manual on Terminology and Classification in Mental Retardation* groups mental defectives in Classes I to VII and puts everything else in Class VIII, which includes cultural-familial mental retardation, psychogenic (apparent or pseudo) mental retardation associated with environmental deprivation or emotional disturbance, or psychotic disorder. Here every diag-

nosis begins with the phrase "mental retardation associated with. . . ." In medical classification, this would be analogous to fever associated with typhoid fever, with typhus fever, with malarial fever, with relapsing fever, etc.

I would like to suggest for consideration a system of classification which will exclude mental retardation for individuals at the lower end of mental capability distribution curve for reasons stated above and will include developmental anomalies or diseases in accordance with the time the various noxious situations or agents effecting the product of conception (conceptus).

This group of mental defectives probably amounts to around a quarter of one per cent of the total population of the United States. It can be expected that as medical science progresses, this percentage may increase since a number of the severely defective individuals who have difficulty surviving may be kept alive by modern medical means. This classification will tend to direct our attention to etiological consideration as well as to possibilities of prevention. Such a classification will be as follows:

- A. Heredofamilial:
 - (1) Hereditary enzyme disorders
 - (2) Probable hereditary enzyme disorders
 - (3) Hereditary disorders of unknown mechanism with manifest pathology of the central nervous system
- B. Associated With Chromosome Aberrations:
 - (1) Disorders associated with sex chromosome aberrations
 - (2) Disorders associated with autosomal chromosome aberrations
- C. Prenatal Cerebral Defects:
 - (1) Infection
 - (2) Intoxication
 - (3) Trauma
 - (4) Metabolic
 - (5) Vascular
 - (6) Unknown or uncertain cause
 - (7) Other
- D. Paranatal Cerebral Defect:
 - (1) Infection
 - (2) Intoxication
 - (3) Trauma
 - (4) Metabolic
 - (5) Vascular
 - (6) Unknown or uncertain cause
 - (7) Others
- E. Postnatal Cerebral Defect
 - (1) Infection
 - (2) Intoxication
 - (3) Trauma
 - (4) Metabolic
 - (5) Vascular
 - (6) Unknown or uncertain cause
 - (7) Others
- F. Postnatal Psychogenic Mental Defect
 - (1) Associated with environmental deprivation
 - (2) Associated with emotional disturbance
 - (3) Associated with psychotic disorder

Heredofamilial Disorders

1. Hereditary Enzyme Disorders
 - (a) Phenylketonuria
 - (b) Homocystinuria
 - (c) Maple Syrup Urine Disease
 - (d) Hartnup disease
 - (e) Other Aminoaciduria: Argininosuccinic aciduria, citrullinuria, cystathioninuria, hyperglycinuria, etc.
 - (f) Hepatolenticular degeneration
 - (g) Galactosemia
 - (h) Gargoylism (Hurler's disease)
 - (i) Other

This group includes hereditary determined, genetically transmitted disorders affecting the total organism with mental retardation as one of the many symptoms involving other organs.

2. Probable Hereditary Enzyme Disorders
 - (a) Porphyria
 - (b) Glycogenosis (von Gierke's disease)
 - (c) Arachnodactyly (Marfan's syndrome)
 - (d) Others

This group includes hereditary determined, genetically transmitted disorders affecting the total organism with mental retardation as one of the many symptoms involving other organs. Group 2 differs from Group 1 only because we do not yet understand clearly the enzyme deficiency. It is quite possible that a number of conditions may be classed in Group 1 while I am writing now. The idea of keeping this as a separate group is to remind us that research is required to better understand the mechanism of enzyme disorders. Once the enzyme disorder is understood, the disorder may be moved into Group 1.

Recognizing the importance of these two groups, we should intensify bio-chemical research in institutions for the mental defectives: (1) to discover more such disorders; (2) to find ways to identify carrier of the genetic trait; (3) to discover chemical formula of the disordered enzyme, and (4) to chemically synthesize the disordered enzyme. As long as the chemical structure of the enzyme is not known, the enzyme cannot be synthesized. Without the ability to synthesize the deficient or defective enzyme, the treatment will be restricted to withholding certain metabolites requiring this particular enzyme; such as the withholding of all proteins containing phenylalanine in the treatment of phenylketonuria and the withholding of milk in galactosemia. Although these disorders

may be difficult to treat before we understand completely the chemistry of the enzymes, they can be prevented if we can identify the carriers and manage to examine as early as possible and as thoroughly as feasible, the progeny of these carriers.

3. Hereditary Disorders of Unknown Mechanism

- (a) Cerebral lipoidosis
 - Infantile (Tay-Sach's disease)
 - Late infantile (Bielschowsky's disease)
 - Juvenile (Spielmeyer-Vogt's disease)
 - Late juvenile (Kuf's disease)
- (b) Lipid histiocytosis of Kerasin type (Gaucher's disease)
- (c) Lipid histiocytosis of phosphatide type (Niemann-Pick's disease)
- (d) Laurence-Moon-Biedl Syndrome
- (e) Diffuse sclerosis
 - Acute infantile (Krabbe's disease)
 - Chronic infantile (Merzbacher-Pelizaews disease)
- (f) Metachromatic leukodystrophy
 - Infantile (Greenfield's disease)
 - Juvenile (Scholz's disease)
- (g) Friedreich's ataxia
- (h) Neurofibromatosis (Von Recklinghausen's disease)
- (i) Tuberous Sclerosis (Bourneville's disease)
- (j) Trigeminal Cerebral Angiomatosis (Sturge-Weber Dimitri's disease)
- (k) Others

In this group, the many rather infrequently observed hereditary disorders seem to have the main pathology involving the central nervous system with secondary manifestation in parts of the body. The histopathology is fairly well studied but the histochemical changes of the altered tissue is still not clearly understood. A few examples show similar cellular changes in organs outside of the central nervous system. Are these disorders examples of primary affections of the central nervous system, thus distinguishing them from disorders classed in the first two groups? The few examples with similar cellular changes in other organs may suggest that they have similar basic anomaly in enzyme deficiency. Further, histochemical study of the cerebral lesions and biochemical study of the individuals may shed more light. Since these disorders are rather infrequent, their study should be well planned in advance and preferably by a certain central organization where all such cases may be referred.

It is very debatable whether one may include in this group the so-called idiopathic centrencephalic epilepsy. Patients with centrencephalic epilepsy, either petit mal or grand mal, do show more prominent hereditary taint than patients with secondary,

symptomatic or focal epilepsies.⁴ Brains of such patients have not been found to show pathological changes in the supposed epileptogenic zone in the centrencephaly.

Disorders Associated With Chromosome Aberrations

1. Disorders Associated With Sex Chromosome Aberrations
 - (a) Klinefelter syndrome
 - (b) Turner syndrome
 - (c) Others
2. Disorders Associated With Autosomal Chromosome Aberrations
 - (a) Trisomy 21 Mongolism
 - (b) Translocation Mongolism
 - (c) Trisomy 18
 - (d) Others

Chromosome aberrations, whether trisomy or translocation of autosome or reduction and duplication of sex chromosome often show mental retardation as one of the many symptoms. Individuals with sex chromosome aberrations may not show mental retardation, but individuals with autosomal chromosome aberrations, as we know them, show mental retardation. There are a few cases reported where the parent of a patient with mongolism does not exhibit mental retardation, but shows chromosomal aberrations.^{5, 6} Individuals with sex chromosome aberrations have undergone chromosome studies, because they show anomalies referable to primary or secondary sex characteristics with associated mental retardation in some cases, whereas individuals with autosomal chromosome aberrations have undergone chromosome studies, primarily because they show mental retardation. It may be advisable for us to study the chromosome pattern of parents and close relatives of patients with mongolism and trisomy 18 to determine if mental retardation is invariably present in patients with autosomal chromosome aberrations.

Recent studies⁷ seem to suggest that sex chromosome aberration and autosomal chromosome aberration may be caused by a certain unknown factor. Nichols *et al.*⁸ observed chromosome breakage in human leukocytes in vitro when Schmidt-Ruppin strain of Rous sarcoma virus was added to the cultures. The more than chance association of mongolism and leukemia, and the finding of Dmochowski⁹ that virus or PPLO particles from human leukemia tissue have been successfully transmitted into animals and produced similar sickness and that similar particles were recovered from the sick animals, could certainly stimulate some speculation. Could chromosome aberrations be caused by the invasion of certain noxa-like virus? This could be a very interesting subject for research and may even lead to methods of prevention.

Prenatal Cerebral Defect

1. Infection
 - (a) Syphilis, congenital
 - (b) Rubella, congenital
 - (c) Cytomegalic inclusion body disease, congenital
 - (d) Toxoplasmosis, congenital
 - (e) Others
2. Intoxication
 - (a) Maternal pregnancy toxemia
 - (b) Maternal intoxication with drugs (such as Aralen, Thalidamide, folic acid antagonist and other poisons)
 - (c) Others
3. Trauma
 - (a) Maternal irradiation
 - (b) Maternal anemia
 - (c) Maternal cardiovascular disease with hypoxia
 - (d) Others
4. Metabolic
 - (a) Maternal metabolic disorder, such as diabetes mellitus
 - (b) Maternal endocrine disorder, such as hypothyroidism, hyperthyroidism
 - (c) Others
5. Vascular
 - (a) Placental anomalies with disturbed circulation
(This will probably include conditions recognizable only after post-mortem examination; such as porencephaly, status marmoratus, etc. resulting from vascular pathology.)
6. Unknown or uncertain cause, malformation of gyri, secondary microcephaly, hydrocephaly, craniostenosis, etc.
7. Others

This group of congenital maldevelopments and defects probably constitutes the most important causes of mental defective. The most critical period is probably in the second month of gestation, when many different noxae could have very severe damaging effect on the developing embryo. About 25 per cent of the mothers who have rubella in the first trimester, will have infants with major or minor defects. Mothers who take Thalidamide in the first trimester, may have infants with not only phocomelia but also mental defects. Irradiation of the mothers in the first trimester may lead to the birth of infants with major or minor defects. Recent studies¹⁰ suggest that even chronic emotional distress may lead to the birth of infants with mental defect. Many times we can only theorize and speculate. Much research is necessary to give us a better and clearer understanding of what the really important causes are and how we may pre-

vent such deleterious effects on the developing embryo.

Many times a young woman is unaware and often unsure that she is pregnant during the first two months of gestation. It is during this period of time that she should be most careful of her health, both physical and mental. In this highly competitive, rapidly moving, and often materialistically oriented world of today, many people are under increased nervous tension and a number of them are taking "tranquilizers" and sedatives, whose effect on developing embryo while the mother is taking the drug, is largely unknown. The commonly used sedative, Doriden, is a close cousin of Thalidamide chemically. The various anti-emetics used to help control the morning sickness may have some effect on the embryo that we do not yet know. The nervous tension itself may have deleterious effect, yet unknown.

It is imperative that young American women keep themselves at optimal healthy condition during the child bearing age, if they are to avoid the possibility of injuring unknowingly our future generation. The young women must avoid diet fads and consume a well-balanced diet. They must maintain a healthy mental attitude and outlook of life, thus to avoid the need of using sedating and tranquilizing drugs. The conditions that will injuriously effect the developing embryo are, in most cases, preventable. It is the responsibility of the medical profession in general and the obstetricians in particular, to emphasize the importance of maintaining optimal health for all young women, and to educate the public to become aware of the tremendous importance of environment of the developing embryo. We are accustomed to respecting life only after the child is born. We do not count the nine months of intrauterine living as a part of human life, which begins only with the process of birth, the separation of the child from the mother. Recent studies¹¹ suggest that a fetus may begin to learn even while it is living in the uterus.

Paranatal Cerebral Defect

1. Infection
2. Intoxication
 - (a) Bilirubin encephalopathy (Kernicterus) due to Rh or ABO incompatibility
 - (b) Maternal pregnancy toxemia
 - (c) Drugs used on mother, particularly at time of delivery
3. Trauma
 - (a) Mechanical
4. Metabolic
5. Vascular
 - (a) Hypoxia
 - (b) Premature separation of placenta
6. Unknown or uncertain cause
7. Others

Cerebral palsy often associated with some degree of mental retardation may be caused by prenatal as well as paranatal conditions.¹² The two important causes are probably severe hypoxia and bilirubinemia. In the paranatal period the fetus and newborn are quite resistant to oxygen deficiencies which would kill an adult, probably as nature's means to preserve life. However, even in the fetus and newborn there is a level below which oxygen deprivation cannot fall, and a period of time beyond which oxygen deprivation cannot be maintained without damage to the organism. Difficulty in establishing respiration occurs in about five to 10 per cent of newborn infants. This percentage will be significantly increased when the mother is a narcotic addict, when the mother requires heavy sedation during delivery and when the delivery is otherwise complicated. Eastman recommends that oxygen should be routinely administered to the mother in the last five to 15 minutes before delivery in order to protect the welfare of the one baby in 20 who needs it, who may be suffering from some degree of anoxia. Erythroblastosis with resulting bilirubinemia occurs in about one out of every 200 pregnancies. Rh incompatibility and ABO incompatibility as causes of mental defects are well recognized. These conditions are largely preventable if the pregnant woman receives proper and adequate prenatal care and is delivered under good obstetrical care.

Postnatal Cerebral Defect

1. Infection
 - (a) Viral—equine encephalomyelitis
 - (b) Bacterial—meningoencephalitis
 - (c) Protozoal
 - (d) Mycotic organism
 - (e) Others—encephalitis periaxialis diffuse
(Schilder's disease)
2. Intoxication
 - (a) Encephalopathy due to lead, carbon monoxide, etc.
 - (b) Encephalopathy, post-immunization and other allergic reaction
3. Trauma
 - (a) Mechanical
 - (b) Tumor compression and extension
 - (c) Others
4. Metabolic
 - (a) Hypoglycemia
 - (b) Others
5. Vascular
 - (a) Embolism
 - (b) Hemorrhage—subdural or epidural
 - (c) Others
6. Unknown or uncertain cause
7. Others

Most of the conditions which could result in mental defects in the postnatal period are preventable. It is the responsibility of the medical profession, particularly pediatricians, to keep our children healthy and to prevent their being exposed to these noxious agents.

Postnatal Psychogenic Mental Defect

1. Associated with environmental deprivation
2. Associated with emotional disturbance
3. Associated with psychotic disorder

This group is composed of individuals whose mental capabilities are arrested, delayed or even degenerated in their development owing to psychological reasons. These individuals are functioning at a level lower than their natural endowment and potentials and are apparently suffering from the symptom of "mental retardation." This probably represents the group of "mental retardates" as defined by the World Health Organization. It is generally believed that such individuals show no organic anatomico-physiological changes in the nervous system and the symptoms thus produced are largely reversible. One must also consider that some of the symptoms in some individuals may not be reversible after a certain period of time. Psychosomatic disorders, such as exophthalmic goiters, peptic and duodenal ulcers, allergic bronchial asthmas, etc., may begin with just functional disorders, but often end with definite anatomico-physiological changes in the many organs with irreversible functional disturbance. Experimentally, abnormal motor patterns which developed following blindfolding in monkeys may persist unchanged if the blindfolding has been maintained over a certain period of time.¹³ That functional disturbances without organic changes may in time become associated with anatomico-physiological disorders and may become irreversible should alert us to the early recognition and treatment of such individuals and not to wait until the symptoms reach the irreversible stage. This demands extensive and intensive psychologic and psychiatric research of this group of so-called "pseudo-retardates" to detect and to determine the important environmental situations leading to such functional disorders and methods of treating them.

Summary and Conclusions

"Mental retardation" has been used to "label" the segment of individuals occupying the lower segment of the mental capability distribution curve. The often quoted statement that three per cent of the Americans are mentally retarded should be understood to include this segment, which probably constitutes 90 to 95 per cent of this three per cent, that is approximately five million people.

This phenomenon of the lower segment of the dis-

tribution of any human quality, "mental retardation" in this present case, will always be with us. The problem connected with "mental retardation" in this sense may be dealt with by general acceptance of the phenomenon and by finding means to provide these "mentally retarded" individuals with self-sufficiency, self-pride and self-respect.

Probably one-quarter of one per cent of the American population (approximately 400,000) is suffering from mental defectiveness, resulting from developmental anomalies or diseases of the brain in childhood. They are the severely and profoundly "mentally retarded" children, actually pediatric-neurologic patients, with "mental retardation" as one of the many symptoms.

Mental defectives can be classified into six groups in accordance with the time the various noxious situations or agents affect the product of conception.

Recent research has disclosed many hereditary enzyme disturbances, resulting in a malformed or maldeveloped organism with "mental retardation" as one of the important symptoms.

Many hereditary disorders of the central nervous system present mental retardation as a symptom. The exact mechanism of the heredity is still unknown. Intensive biochemical research is necessary to improve our knowledge and understanding of these disorders, their mechanism of production, their treatment and prevention.

More and more examples of mental defects are shown to be associated with chromosomal aberrations. Research, probably in the field of virology, will be necessary to disclose the common factor which leads to the various forms of chromosomal aberrations.

Most of the conditions which might affect the embryo, fetus or infant during the prenatal, perinatal, and postnatal periods are preventable medical disorders. It is a challenge for the medical profession to prevent the occurrence of these injurious conditions and thus reduce the number of mental defectives. It is not enough just to preserve life, we need to preserve more profitable and useful life.

Postnatal psychogenic mental defect includes individuals whose innate mental capabilities are arrested, delayed or degenerated in their development. Although in general these changes are reversible, many such changes may become irreversible if the disorders are allowed to persist for too long a time.

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PHOTOSENSITIVITY

When a carrot is touched in blazing sunlight by a person predisposed to "phytophotodermatitis," a blister-like eruption can occur at the point of contact. Persons with this peculiar skin disease are sensitive to the enhanced effect of sun combined with certain ordinary fruits and vegetables. Among plants that may provoke this reaction are parsnips, parsley, fennel, dill, celery, limes, figs and mustard, reports Dr. Klaus D. Rennert of Denver.

At a recent postgraduate session, the University of Colorado dermatologist said that sulfonamides and a number of other frequently prescribed oral drugs can cause photosensitivity. Drug sensitivities are of two types. A phototoxic reaction is an exaggerated sunburn with diffuse, transient or persistent redness of the exposed skin, followed by residual hyperpigmentation, itching and shedding. Photoallergic reactions take the form of hives or weeping eczema-like lesions with flares in distant, unexposed areas and no hyperpigmentation.

Phototoxic reactions appear to be nine times as common as photoallergic sensitivities. A phototoxic reaction must be triggered by a specific wave-length of light and appears a few hours later. Photoallergic reactions are initiated by a wide spectrum of light and may not show up for days.

Topically applied corticosteroid creams and lotions are beneficial in treating phototoxic reactions, Dr. Rennert points out. For photoallergic reactions, the antimalarial drugs are useful, and sunscreen preparations offer some measure of protection.—*Med. World News*, Feb. 11, pp. 29-30.



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., Kansas City, Kansas

(Continued from May)

I told Dean Sudler that I simply couldn't teach both pathology and bacteriology but that I knew a man as qualified as I to teach bacteriology, a man who had enjoyed exactly the same training in bacteriology as I, i.e., one semester in second year of the medical course. Dean Sudler was satisfied; I wrote to my friend who agreed to come after Christmas and give the course in bacteriology. This friend was Dr. T. G. Orr (*Figure 9*), who was professor of bacteriology for the second semester, 1915, although a careful search of the catalogues for 1914-15 and 1915-16 reveals no professor of bacteriology named Orr. The catalogue for 1915-16 lists a Mr. Orr as instructor in surgery. The same catalogue shows a definite delicate English touch by listing as *Misters* in the department of surgery not only Orr but also Nesselrode, Francisco, Roberts, McCarthy, Rumsey and Gilliland. "One of my thrills while teaching bacteriology," Dr. Orr remarked later, "came when one of the students told me that anthracosis was caused by the anthrax bacillus."

The bacteriology class was subsequently moved back to Lawrence and placed in charge of Noble P. Sherwood. His subsequent rise to leadership among the bacteriologists of America is fresh in the minds of all of us. His book on *Immunity*, first published in 1935, remains the standard text on that subject.

This is the second of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

The sophomore class which was coming down from Lawrence that year of 1915, I found, on careful check with the registrar at Lawrence, consisted of 14 students, a number which would certainly permit individual instruction and attention. While my knowl-

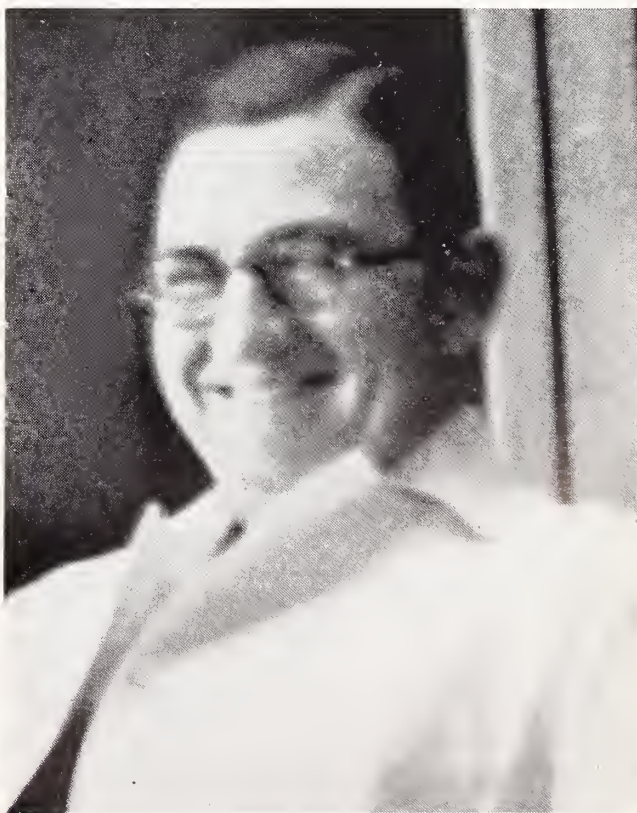


Figure 9. Thomas G. Orr

edge of pathology was far from profound, I took some assurance from the fact that I knew more of the subject than the students, had seen a great many autopsies in Baltimore, and had performed many autopsies myself in San Francisco. Here my instruction had been under a master whose knowledge of gross and microscopic pathology was profound and whose tradition stemmed from the great Virchow himself. Ophüls had been assistant to Johannes Orth, one of Virchow's most brilliant pupils and, later, Virchow's successor in Berlin. At times, I was a little disturbed at the thought that the students might ask questions I couldn't answer. Then I remembered the technique of one of my instructors, who, when asked a difficult question, answered the student by saying, "Well, that is a fine question for you to look up." So I faced the future with some confidence and some misgivings.

When the doctors found out that the new professor of pathology considered himself pathologist to the Bell Memorial Hospital, rather liked to do autopsies, and had a telephone, the department of pathology began to perform autopsies. The first autopsy was numbered I-1, and number 1, with which the series began in October, 1914, reached by the end of the year 1915, 32 autopsies. Quite a contrast to the present record, which numbered 393 in 1953!

The surgeons also began to send surgical specimens, and we began the surgical series with A-1. Some of the surgeons still preferred Dr. Hall's judgment to mine (and so did I!), but we affected a compromise, and I always got a piece of the tissue for our laboratory.

Meanwhile, I began to get acquainted with my colleagues on the faculty.

One of the first colleagues I met was Dr. S. J. Crumbine (*Figure 10*), a spare, trim man with a greying, carefully trained and trimmed mustache, immaculately dressed, perfect manners, and a gentleman in every word and action. Formerly he had practiced in Western Kansas, where, I was told, he sported a full bushy beard but, seeing the challenge and future of public health, came to Topeka as secretary of the Board of Health and shaved off his whiskers. He was already one of the best known men in Kansas through his crusade against the common drinking cup, against roller towels in public places, and through his campaign of "swat the fly." He was a man of vision, integrity, broad outlook and culture, and the Chancellor believed he would add prestige (sorely needed) to the new Medical School. When Dr. Hoxie resigned in 1911 as Dean of the Clinical Department, Dr. Crumbine was appointed Dean of the School of Medicine with Dr. Sudler as Associate Dean. This arrangement was eminently satisfactory both to Dr. Crumbine and to Dr. Sudler, and they worked in complete harmony and understanding.

Dr. Sudler was, to all intents, Dean. He formulated the policies, made the appointments, settled intramural disputes, and received the shower of brickbats that seem one of the occupational hazards of all medical deans. Dr. Crumbine was professor of preventive medicine, spent most of his time in Topeka as secretary of the Board of Health, and came down once a week to lecture to the students and to discuss the affairs of the Medical School. He also received his quota of brickbats at Topeka, especially when he tried to enforce the pure food laws. Confiscating substan-

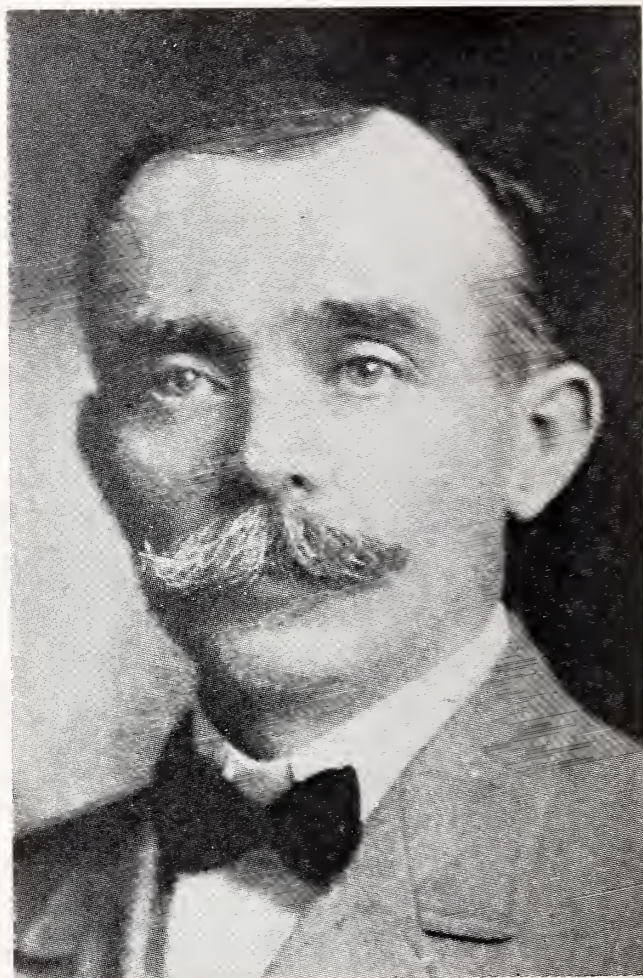


Figure 10. S. J. Crumbine

dard canned tomatoes and catsup containing injurious preservatives and adulterants made him very unpopular in certain circles. After serving as Dean for several years, one of his sworn enemies introduced a bill in the legislature to the effect that no employee of the state should be paid a salary for holding one position while his time was spent in another. When this, apparently, most reasonable suggestion became the law, the author of the bill pointed out that Dr. Crumbine was Dean of the Medical School but was paid for serving as secretary of the Board of Health. So Dr. Crumbine resigned as Dean. (This account

was related to me, personally, by the author of the bill.)

Dr. Crumbine's enemies continued their relentless vendetta, their next object being to remove him as secretary of the Board of Health. A few years later, a governor, who has left behind him in university circles a somewhat malodorous reputation, wished to get rid of Dr. Crumbine, but, hesitating to dismiss him because of his great popularity with the public and the support the press gave him, tried an unusual stratagem. When Dr. Crumbine and his staff were out at noon for their lunch, he changed the locks on his door, so that, when the doctor returned, the door was locked and his key didn't fit the lock. As Dr. Crumbine told me a day or so later when I saw him in Topeka, "I think it's about time I left Kansas." Soon afterwards, he went to New York as director of the Children's Bureau and presently achieved a national and international reputation in the field of public health. He died in 1954 at the age of 91, respected and honored as one of the outstanding physicians of his generation. Six years before his death, he wrote *Frontier Doctor*, which received unusual acclaim from the reviewers.



Figure 11. D. C. Guffey

Dr. Don Carlos Guffey (Figure 11), who was professor of obstetrics and gynecology, was unusually kind and considerate to the new professor of pathology. He had the reputation among the students of being the best teacher in the Medical School, and I

think he deserved it. Together we gave a course in gynecological pathology. The students were always fascinated when he discussed the patient's illness, the details of the differential diagnosis, and the findings at the operation. But, when I took over, described the gross specimen, and showed the microscopic slides, a glaze often seemed to spread over the students' eyes. I always felt that this course in gynecological pathology was a 50 per cent success, with Guffey 50 and me zero.



Figure 12. W. S. Sutton

Another colleague I met was Dr. Walter Sutton (Figure 12), associate professor of surgery, a tall, handsome young man, whose charm of manner was equalled by his surgical skill and deep knowledge of fundamental surgical problems. He would without doubt have been one of the outstanding surgeons in this area had he not died of acute appendicitis when on the threshold of great success and achievement. Before studying medicine, he had worked much in biology, was deeply interested in biological problems, and enjoyed discussing them. His important discoveries in eugenics are memorialized in the Sutton-Bovery Hypothesis.

On my arrival, I was welcomed warmly by Dr. Franklin E. Murphy (Figure 13), who encouraged every effort I made to improve the teaching and work of the department of pathology. Dr. Murphy was a



Figure 13. Franklin E. Murphy

little below the average height; rather rotund, or should I say robin-esque, in shape; had very bright, intelligent, grey eyes; a small closely cropped mustache; was rather ruddy and definitely bald. He was a very polished gentleman with delightful manners—with much of what we often describe as Old World courtesy. He was well educated, had done postgraduate work in Germany, the Mecca of medicine at that time, and was a man of great honor and integrity.

André Maurois, in his *Journal Des Etats-Unis*, 1946, describes a dinner party given by Mrs. William Allen White, at which Henry Allen was a guest. "In speaking of a politician, someone asked,

" 'Is he honest?'

" 'Well, not fanatically honest,' answered Allen."

While no one could describe Dr. Murphy as a fanatic, yet to him some things were white, others were black, and he had little patience with varying shades of grey. Many of his casual remarks had the quality of aphorisms. One day, I recall, in discussing a patient who had undergone a tonsillectomy and de-

veloped a serious diarrhoea, he asked what the excreta showed. When told it had been impossible to obtain a specimen, Dr. Murphy observed after a pause, "This is a strange hospital where it is so hard to get a specimen and so ridiculously easy to get a pair of tonsils out." On another occasion, upon learning that one of the "higher brass," noted for his suave manners and "flexibility," had criticized one of the staff because he had no "front," Dr. Murphy remarked that what the school needed was more men without front but with lots of backbone. In this description of Dr. Murphy, one, perhaps unimportant, characteristic has been omitted—he was a beautiful dancer.

Dr. Lindsay Milne, professor of medicine, became at once a valued friend and colleague. Dr. Milne, a graduate of Edinburgh, was one of the best trained men on the faculty and came to Kansas after a long training in Europe and in New York. Very adaptable, like most Scotsmen, he was rapidly wearing the burrs off his native tongue and speaking more and more like a Middle Westerner. He was a very intelligent man, extremely well informed and an excellent storyteller, and, like all good storytellers, not averse to embellishing his stories a bit. I recall one day at the lunch table he told of the harrowing experiences he had had the night before, driving over muddy roads, barely making the top of the hills through the sticky mud, then, when he reached the top, sliding downhill in the mud and several times landing in the ditch. After he had finished his dramatic account, someone asked, "How was it coming back?" "No trouble at all, downhill all the way." Everyone roared, and Milne joined in the laughter at his own expense.

One of the most colorful of my colleagues was Dr. William W. Duke (*Figure 14*), professor of experimental medicine. This designation, however, was more of a title than a reality. He had no laboratory for experimental work, carried out no experiments at the Medical School, and his course in experimental medicine was only a series of lectures on the subject. I had known Bill Duke since medical school days, and I am sure that he had one of the most original minds ever enrolled on the faculty of the Medical School. While still a medical student he had shown, by a series of original experiments, that the heart absorbs glucose from the blood in the coronary arteries and that glucose is necessary for cardiac contractions. Soon after graduation, he carried out studies in hematology, noted the role of blood platelets in coagulation, and was one of the early observers to describe a great numerical decrease of blood platelets in purpura. In the course of this work, Duke devised the well-known bleeding time test and pointed out the difference between the bleeding time and the coagulation time. Duke next turned to the field of endocrinology, which he enriched with many original observations, and later took up allergy, became a



Figure 14. W. W. Duke

recognized authority in this field, and discovered physical allergy.

Duke belied the prophecies of his classmates, who predicted he would become a physiologist and spend his days in an ivory tower. Instead, he took an internship and postgraduate work in internal medicine; spent a year in Germany, and then returned to Kansas City, his home; opened an office, and soon had one of the largest, if not the largest, practices in the city. Bill had a rather atrophied sense of the fitness of things. When I first arrived in Rosedale, Duke was in the endocrinology phase of his career. I recall one occasion when the Nu Sigma Nu fraternity had an annual banquet at the Savoy Hotel, at which he had been invited to be one of the speakers. Bill was the first one called upon, and, as soon as he was introduced, an assistant produced a projection apparatus and a screen, turned out the lights, and Bill proceeded to lecture for an hour and a half on diseases of the glands of internal secretion—a very interesting lecture showing, for instance, that Jack Johnson lost the heavyweight boxing championship because he developed pituitary disease. However, it was not appreciated by his somewhat convivial audience, which gradually melted away in the darkness.

I shall never forget one of the men at the dinner, who was a tall, nice looking chap, extremely genial,

and with whom I had a long talk. His name was Bill Fitzsimons (*Figure 15*), who was later to have the melancholy distinction of being the first American officer to lose his life in the First World War. A memorial tablet dedicated to him is on the north wall of the main entrance to the hospital; later, the Fitzsimons Hospital near Denver, Colorado, was named in his honor. He was a delightful fellow and a bright, engaging young man. His tragic death not long afterwards from a bombing raid brought the war close to home.

The endocrine lecture by Duke had another interesting adventure. Bill was invited to speak before the W.C.T.U. at the Christian Church in Liberty, Missouri, on the subject of "Alcohol" and appeared with his assistant, projector, lantern slides and screen. The meeting opened with a prayer, which was followed by a violin solo, and then the president announced, "Dr. Duke of Kansas City will speak on the subject of alcohol." Bill arose solemnly, announced that he knew nothing good about alcohol, but, if the audience did not object, he would talk on the glands of internal secretion, and he proceeded to give his lecture on endocrinology. Many of Bill's lantern slides were striking, if not dramatic. All the pictures of the men and women were stark naked—women with enormous breasts, men with enormous and microscopic genitalia, hemaphrodites, etc., etc. The audience, almost entirely of women and children,



Figure 15. W. T. Fitzsimons

was tremendously impressed by the lecture. In fact, for a month it was the talk of the town.

A few years later, Bill called me up one night in great distress. He had promised to bring some examples of endocrine disease for Dr. Lewellys F. Barker to present at a clinic before the Kansas City Clinical Society and found he had none. I told him I would supply him with the patients he needed. Bill drew a long sigh of relief and observed, "You know it's curious. When I was interested in endocrinology, in practically every patient who came to my office I found some glandular trouble. Now, since I am specializing in allergy, practically everybody who comes into my office turns out to have some form of allergy. It just shows that, if a fellow specializes in a field, the patients come to him." An alternate explanation never seemed to have occurred to him.

Bill was often very positive in his views. One evening I heard him read a paper on edema before the Jackson County Medical Society. When he had finished, a colleague arose and said, "I should like to ask Dr. Duke what he thinks of Martin Fischer's theory of edema." "I never read a line Fischer wrote," answered Bill, "but I know damned well that he was wrong."

Duke was quite a "character." As in the case of most "characters," there were a lot of stories and anecdotes related about him, some true, some apocryphal. The few that I have related are gospel truth.

Dr. Sayre, Dean of the School of Pharmacy, came down from Lawrence once a week to lecture on materia medica and invariably had lunch with us at the hospital. He was a delightful old gentleman, reserved and gentle in demeanor, and greatly respected by the students.

Another colleague whom I met and appreciated was Andrew L. Skoog, who taught neurology. Skoog had just returned from study at the Salpêtrière in Paris, where he had had exceptional opportunities. The First World War was in full blast, many patients with neurological injuries were pouring into the Salpêtrière, and, due to a shortage of French doctors, Skoog was invited to have a service of his own. His knowledge of gross and microscopic neurological pathology seemed to me to rank with that of Edinger and Van Gehuchten. I recall that one day he was lecturing to the class in the lecture room on the first floor, just above the animal room. Skoog was demonstrating a section of tissue stained by the Pal-Weigert method, which was projected on the screen. After pointing out the beauty and importance of the section, Skoog paused for a moment to allow his words to sink in, when a goat in the animal room below let out a stertorous "ba-a-a!" The class roared, and Skoog's dramatic effect was ruined. Such are the trivia one recalls of one's colleagues.

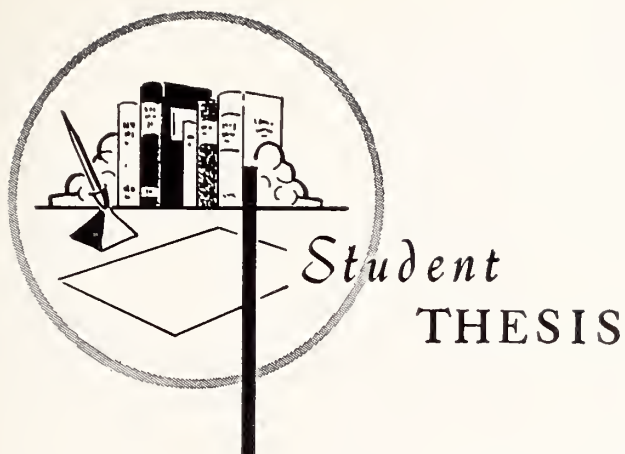
In one of my first classes in pathology was a junior student named Nelse F. Ockerblad. Nelse was at that time physical director at the Y.M.C.A. and an excellent amateur photographer. He was, indeed, the official photographer of the institution, who, in his spare moments, took all photographs of patients, made all the lantern-slides, and performed the various duties now carried out by three full-time photographers. After graduation and an internship in Montreal, Nelse became a genitourinary specialist and headed this department in his Alma Mater until his retirement.

There were a number of students of this epoch who later became well-known physicians—among them Rex Diveley, one of the outstanding orthopedic surgeons of the nation; E. A. Sharp, later director of research at Parke Davis and Company; Earl Padgett, the plastic surgeon; Lawrence Engel, the well-known surgeon of Kansas City; Chauncey McKinlay, my first student assistant, later a leading internist of Minneapolis; Watie Alberty, Lewis G. Allen, Horace Boone, Lafe Bresette, Fred Campbell, J. E. Castles, Arthur Clasen, James D. Colt, Robert Densmore, O. Jason Dixon, Louis Gloyne, Tom Howden, Claude J. Hunt, Albert Lemoine, Sherwin Mella, Oliver Miner, Lyle Sellars, Dar Stofer, Elmer Whitney. These and many other graduates have been a credit to the medical profession.

As the months sped by, I often saw the first member of the faculty I had met—Dr. Sam Roberts, and I saw with real satisfaction that he was rapidly climbing to the top of his profession. A few years later, no one was more pleased than I when he was appointed chairman of the department of otorhinolaryngology. In addition to his skill as a surgeon, his clarity as a teacher, his mastery of his field, Sam's outstanding characteristics were his sympathy for his patients and his charity for his neighbor. Osler once said, "Let not your ear hear the sound of your voice raised in unkind criticism or ridicule or condemnation of a brother physician. If you do, you can never again meet that man face to face." This Oslerian precept Sam followed in his daily life.

During the first year I did not come in very close contact with some of the other notables of the Medical School, such as Dr. Bohan, Dr. Gray and Dr. Nesselrode. They taught the medical students at St. Margaret's Hospital, at that time much farther away than at present since the Seventh Street Viaduct was then only a vision, and to reach St. Margaret's Hospital it was necessary to drive almost the entire length of Kansas City and cross on the Intercity Viaduct. As St. Margaret's Hospital had its own laboratory and its own pathologist, the contact between it and the department of pathology in Rosedale was slight.

(To Be Continued Next Month)



Farmer's Lung: A Review of Current Knowledge 1965

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FARMER'S LUNG is a granulomatous interstitial pneumonitis which occurs in certain sensitized individuals on exposure to moldy vegetable dusts. The disease has long been known by the farmers around Devonshire, England, where Fuller was able to trace the condition through several generations. It is traditionally known as "haymaethie" or "haybreathlessness" to the farmers in Southern Iceland, but it was not until 1932 that it was first described in the medical literature by Campbell from Great Britain, where it is now a well known disease entity. The first report of this disease in the United States appeared in 1954 when Soucheray reported three cases of the disease in farmers exposed to dust from moldy corn silage. Since that time numerous cases have been reported from the United States. Much of the delay in the recognition of this disease as a definite disease entity can be attributed to the fact that virtually all the acute cases occur in rural areas, where a single physician might see at the most one or two cases a year and easily diagnose these as an atypical pneumonia, bronchitis, or bronchiectasis. It is also important to note that the disease affects primarily farmers, who are seldom involved in the unemployment and disability compensation claims which have often led to the recognition of various occupational diseases in other sectors of the economy.

Farmer's lung is a distinct, easily recognized, clinical syndrome with uniform clinical, roentgeno-

graphic, physiologic, and pathological features. It is an important occupational hazard to workers exposed to moldy vegetable dusts. The purpose of this report is to present the major features of this syndrome and to review briefly recent experimental work in regard to this disease that it may receive the clinical attention which it deserves.

Incidence

The incidence of farmer's lung is a difficult problem to assess. It is not a common disease, but is no doubt much more common than the total number of reported cases would suggest. Farmer's lung is not a well known disease to most physicians and is often diagnosed as pneumonia, bronchiectasis, or congestive heart failure when seen for the first time. Some patients with minor episodes of this type of illness probably resort to the use of various home cold remedies and never seek professional medical aid.

The first reports of this disease were from England but subsequent reports have come from Norway, Sweden, Finland, Canada, Iceland, Switzerland, Australia and the United States. Moldy hay was the offending agent in the early cases, but later reports have named grain, silage, tobacco, and threshing dusts.

The effect of climate on the incidence of the disease is well shown by a survey carried out by Staines and Forman in Great Britain where they demonstrated that the condition was virtually unknown in the relatively dry eastern counties of England and Scotland, increasingly common in the west as the yearly rainfall increased, reaching a maximum in areas where the yearly rainfall was the highest. Fuller pointed out that summer rainfall in particular can

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Henrichs is now in the Navy, stationed at the U. S. Naval Hospital, Bethesda, Maryland.

cause great variations in the incidence, a wet spring and summer being followed by a large number of cases the following winter while few, if any, cases of farmer's lung appear after a dry haying season. Numerous authors have reported a seasonal incidence with a moderate peak of cases in the autumn due to threshing and a major peak in the early months of the year when cattle are being fed under cover. This is explained by the fact that grain or hay that is harvested when it is wet usually develops mold by the time it is threshed or fed to cattle.

Most of the patients have been farmers, but occasionally individuals of other occupations are affected. Isolated reports have been made of cases with almost identical clinical findings of farmer's lung: in mushroom-farm workers exposed to mold dust, workers in a factory where molasses was fermented by aspergilli and penicillia for the industrial production of citric acid, and workers exposed to fungal spores in dust created by stripping the bark from maple logs. However, none of these reports furnishes enough information for us to consider it identical to farmer's lung.

The sex incidence shows a large predominance of men over women, as might be expected. However, it is virtually impossible to determine the relative numbers of men and women at risk.

It is interesting to note that Duncan considers "broken-windedness" or "heaves," a chronic debilitating disease of horses thought to be caused by feeding moldy hay, to be analogous to farmer's lung of man.

The age range in reported cases is 12 to 73 years with 75 per cent falling between the ages of 30 and 50 years. Here again the incidence might well be determined by exposure rather than any special susceptibility related to age.

Clinical Manifestations

The characteristic syndrome of farmer's lung consists of the sudden onset of malaise, chills, fever, cough, cyanosis, and dyspnea within six to eight hours following exposure to moldy vegetable dusts. Specifically, the material may be hay, grain, silage, tobacco, or threshing and shredding dusts. Dyspnea is usually the chief symptom and is present in virtually all patients. Other frequently occurring symptoms are fever, chills, hemoptysis, cough, and weight loss. Rankin's summary of the type of vegetable dust and the frequency of occurrence of the above symptoms found in a series of 73 patients is reproduced in Tables 1 and 2 respectively.

Although the chills and fever usually subside in three to seven days, the dyspnea may persist for several weeks or even months after the acute attacks. Often the only physical findings are the presence of diffuse crepitant inspiratory rales and rhonchi. The breathing is shallow and rapid, with difficult inspira-

TABLE 1 ORGANIC DUST EXPOSURE	
Source	Number
Moldy fodder, hay grain	31
Moldy silage	24
Shredding and threshing dusts	8
Exposure to organic dusts without statement as to the presence of molds	8
Moldy tobacco	2
TOTAL	73

TABLE 2 SYMPTOMS		
	Present	Per Cent
Dyspnea	73	100
Cough	69	96
Fever	67	92
Chills	58	80
Weight loss	47	80*
Hemoptysis	14	19

* Of the 58 patients for whom weight change was recorded.

tion being the most prominent feature. The wheezing and obvious expiratory effort of the asthmatic are characteristically absent. No changes observable by x-ray are apparent at this stage.

Fuller divided the clinical course into three phases: acute, subacute, and chronic. The acute isolated attack, as described above, is manifested by the rapid onset of symptoms that subside after a few days. Often these patients are never seen by a physician, or if seen may be given the erroneous diagnosis of pneumonia.

The subacute phase which follows with repeated exposure to the mold dust over a several month period is characterized by a progressive dyspnea and non-productive cough. Slight elevation of the evening temperature with some headache, loss of appetite, and weight loss are also characteristic but the symptom that drives the patients to the doctor is the increasing dyspnea. Physical examination at this time will usually reveal the chest to be clear to percussion with fine crepitant basilar rales and vesicular breath sounds. The characteristic fine mottling of the chest x-ray is usually quite obvious. If at this stage, the patient is removed from the dusty environment, the symptoms and x-ray abnormalities usually clear in one to three months.

However, with repeated exposure the period of recovery after each succeeding attack becomes longer and longer until the chronic phase is entered where there is permanent damage to the lungs with widespread fine fibrosis and a honeycomb type bronchiec-

tasis. From this phase there is no recovery and the patient becomes a pulmonary cripple with all the attendant disabilities, including right-sided heart failure. It is this group that is the most difficult to correctly diagnose because of the nonspecific clinical picture and because the historical details are often obscure.

Laboratory Findings

No consistently abnormal laboratory findings have been reported. The white blood count is occasionally elevated but is usually accompanied by a normal differential, rarely a moderate eosinophilia is observed. The sedimentation rate is usually elevated during the acute and subacute phases. Serum electrophoresis has been carried out in only a small number of patients but most show a rather significant increase in the gamma globulin during the active phase.

Tornell in 1946 first reported the reversal of the tuberculin reaction during the active phase of the disease and Fuller goes so far as to say "that a positive Mantoux reaction during the active phase of a supposed case of farmer's lung, makes the diagnosis dubious."

The pulmonary x-ray changes in farmer's lung are also nonspecific. Fine nodular densities are seen scattered diffusely through both lung fields but are more prominent in the central portions. Frank has described this as a sandstorm or miliary appearance. In addition a finely reticular pattern may be superimposed resulting in a reticular nodular appearance. The roentgenographic appearance usually, but not always, parallels the severity of the symptoms. After the acute episode subsides the x-ray picture gradually clears. Repeated exposure, however, results in increasing changes of emphysema and fibrosis.

Pulmonary Function

Several authors have included some measurement of pulmonary function in their studies of patients with farmer's lung, but almost all of these patients were well on the road to recovery from the acute phase or had already passed into the subacute or chronic stages. However, Williams has been able to reproduce the clinical features of the acute illness in patients with farmer's lung by having them inhale Seitz-filtered, defatted, moldy hay extracts. The clinical symptoms of the acute illness usually appeared four to eight hours after the inhalations and pulmonary function studies obtained at that time revealed significant falls in static lung compliance and diffusing capacity with a less severe but definite fall in F.E.C. and F.E.C.₁. He found no evidence of bronchial airway obstruction which could be reversed by isoprenaline.

In a separate report Williams describes pulmonary function studies in 16 patients who had recovered from the acute illness and had had no contact with

moldy hay for at least three weeks. Residual effort dyspnea was usually associated with: evidence of impaired pulmonary diffusing capacity, arterial oxygen desaturation at rest which increased on effort and rose to 100 per cent when pure oxygen was breathed, a low static compliance, relatively slight impairment in ventilating function, usually no airflow obstruction reversible with isoprenaline, and a high resting minute volume—all compatible with an alveolar-capillary block syndrome. A few of the patients studied had pulmonary hyperinflation, defective gas mixing, and more marked ventilatory impairment, suggesting obstructive lesions in the small airways. However, he felt that it was the alveolar-capillary block that was the primary lesion.

Rankin has reported the results of pulmonary function studies performed on ten patients who were recovering from the acute phase of the illness. These patients were found to have more impairment in ventilatory function (12 per cent decrease in F.E.C., 23 per cent in F.E.C.₁, and 17 per cent decrease in M.B.C.) than the patients in Williams' series. All were found to have abnormal distribution of inspired gas and almost all were found to have an increased total volume.

The differences as to the degree of impairment in ventilatory function and hyperventilation actually are minor and both agree that the major factor is the alveolar-capillary block.

Pathology

Since the disease is rarely fatal in its earlier stages, tissue for microscopic study has been obtained by lung biopsy. Biopsies taken after the acute illness and during the subacute stage are almost identical. The histologic pattern is characterized by a granulomatous reaction with nodules of poorly defined epithelioid cells and tubercle formation. Occasional scattered giant cells of the Langhans' type can be found in some specimens while in others they are quite numerous. Caseation necrosis is not a feature of farmer's lung. The alveolar septa are regularly involved. Numerous lymphocytes and plasma cells are present in the swollen alveolar septa with only occasional polymorphonuclear cells. Usually varying degrees of interstitial fibrosis, generally most prominent in the region of the granulomata, are present.

The chronic stage is characterized by diffuse interstitial fibrosis with little evidence of an acute granulomatous reaction.

Rankin deduces from this histopathologic picture and the pulmonary function studies that the lung tissue is stiff and resistant, moderately hyperinflated, and has a thickened alveolarcapillary membrane. In addition, there is a moderate to severe disturbance in the relationship between regional ventilation and circulation with little evidence of abnormality in the conducting airways.

Etiology

Campbell, in his original description of farmer's lung, astutely associated the clinical symptoms with the inhalation of moldy hay and grain dust but did not speculate as to a more exact etiology. The exact etiology of farmer's lung is still unknown but all authors agree that it is directly related to the inhalation of moldy vegetable dust. It seems likely that a fungus is essential in the causation although its exact role has not been determined.

Fawcitt, reporting in 1936, regarded the disease a true mycosis and suggested applying the term "bronchomycosis feniseorum" to the disease. He stated that the infection could be mixed, involving *Aspergillus*, *Penicillium*, and *Mucor*. Tornell published a paper in 1946 in which he concluded that *Candida albicans* was the causal factor. Several other authors have also considered farmer's lung to be a true pulmonary mycosis, but there is considerable evidence against this hypothesis. Duncan in 1945 was able to culture many varieties of fungus from patients with farmer's lung and from patients with no pulmonary complaints. He concluded that a positive culture only indicated exposure of the patient to dust containing the relevant spores and was no criterion of actual infection. Conant and other mycologists have confirmed the fact that various species of *Actinomyces*, *Nocardia*, *Candida*, *Penicillium*, *Aspergillus*, *Mucor*, and *Geotrichum* can be cultured from a significantly high percentage of normal sputums and should usually be considered part of the normal flora of sputum. This, plus the failure to culture consistently any specific fungus from the sputum and the failure to find fungus in tissue obtained by lung biopsy tend to rule out the hypothesis that farmer's lung is a true pulmonary mycosis.

Studdert in 1953 suggested that some material in the moldy vegetable dust was acting as a non-specific pulmonary irritant. Frankland and Hamilton in 1958 proposed that the condition was the result of the toxic effect of a mold in a non-allergic person, while Pernis, *et al.* in 1961, attributed the symptoms to the inhalation of bacterial endotoxins. Very little experimental work has been done along these lines, but the failure of these hypotheses to explain why only certain individuals are susceptible and others are not tend to make them unlikely explanations.

Williams and Mulhall in 1956 suggested that the mechanical occlusion of the respiratory bronchioles by hay and fungus spores might be important in the causation of the acute symptoms of farmer's lung. Pickworth in 1961 stated that such mechanical interference might be due to the swelling and germination of the fungal spores. However, this hypothesis does not explain why only a small percentage of individuals exposed to identical conditions are affected. Williams has been able to reproduce the identical symp-

toms and signs of the acute illness in farmer's lung patients using nebulized mists of moldy hay extracts which contained only very few of the mold spores. Failure to observe any actual blockage of the terminal bronchioles in the biopsy specimens, also tends to rule out this mechanism.

Numerous authors have postulated that a hypersensitivity reaction to molds or their breakdown products might be the main factor in the etiology of farmer's lung, since Fawcitt first suggested it as a possible cause in 1938. The rapid onset, the symptomatology and the histopathologic changes are suggestive of a hypersensitivity reaction. Elevation of the gamma globulin portion of the serum proteins and the reversal of the tuberculin reaction can be offered as indirect evidence in support of the hypersensitivity hypothesis. More direct evidence to support the hypersensitivity hypothesis was added in 1961 when Pepys reported the presence of specific precipitins in the sera of patients suffering from farmer's lung. He used sera from ten patients known to have farmer's lung and ten other cases not suffering from the disease, but from the same geographical area. Together with other elaborate controls, agar-gel tests were performed. The sera from the ten cases of farmer's lung all gave precipitin reactions with moldy hay extracts, but those from the ten normal subjects gave none. Inhibition tests showed that the moldy hay extract contained additional antigens, which were not present in the extracts made from the good hay and fungi separately. Attempts to produce moldy hay extracts by inoculating good hay with *Mucor* (species) and *A. fumigatus* decreased the antigenicity of the good hay. However, when good hay was autoclaved, and then inoculated with the fungi, the extracts showed an increased antigenicity from farmer's lung sera. This production of additional antigens in good hay which has been heated and then acted upon by the fungi resembles the natural process in the formation of moldy hay, where a marked rise in temperature and overheating of the hay is a feature. These findings suggest that moldy hay contains antigens produced by the fungal contaminants from the hay, and that it is these antigens themselves which are responsible for the condition.

From the results of inhalation tests by Williams, more support was added to the view that it is the moldy hay itself, or a breakdown product of it, that causes the acute reactions in patients with farmer's lung. He was able to reproduce the identical symptoms and signs of the acute illness in farmer's lung patients within three to eight hours following inhalation of Seitz-filtered, defatted moldy hay extracts. Clean hay and extracts of any isolated microorganisms did not produce reactions. Prednisone appeared to protect one patient with farmer's lung from an acute reaction after inhaling the moldy hay extract.

More recently Pepys, using agar-gel double-diffusion and immunoelectrophoresis has shown that *Thermopolyspora polyspora* is the richest source of farmer's lung antigen known. Pure cultures can produce the farmer's lung antigen on artificial media without hay. The spores and mycelium are particularly rich in the antigen and inhalation of the spores may play a part in farmer's lung. Since it is estimated that only one to two per cent of the actinomycete-type spores found in hay have been grown in culture it is quite possible that the antigen may be contained entirely in the spores of *T. polyspora* and other thermophilic actinomycetes not yet cultured.

Treatment

No consistently satisfactory treatment has been found for farmer's lung. A number of authors have reported beneficial results from iodides. Dickie and Rankin have used adrenal steroid therapy with some success. Williams was able to protect his patients with farmer's lung from clinical symptoms when subjected to inhalation tests with extracts of moldy hay by the use of prednisone while isoprenaline did nothing to alter the symptomatology. However, most reports on the use of steroid therapy are not encouraging. Antibiotics are helpful only in combating secondary invaders.

Since repeated exposure lengthens the period of recovery after each succeeding attack until there is permanent damage to the lungs and the patient becomes a pulmonary cripple with all the attendant disabilities, early diagnosis and prophylaxis, especially the avoidance of repeated exposure to mold dusts, are more important than any definitive treatment. Workers who leave the farm environment after the initial acute attack have a fairly good prognosis, and a change of occupation is highly desirable. Those patients who remain in farming should make every effort to decrease the inhalation of dust by the use of fans, wearing of masks, and so forth. It is obvious that this presents a problem because of the socioeconomic factors involved, but a review of the literature quite vividly shows the disability caused by this illness.

Summary

Farmer's lung is one of the many diseases affecting man as a result of the inhalation of moldy vegetable dusts. Clinically, the acute phase of this disease is of primary interest, but the chronic phase resulting from repeated exposures is also recognized as one of the conditions producing chronic pulmonary fibrosis and pulmonary insufficiency. The acute phase of farmer's lung is a respiratory illness occurring in individuals, previously sensitized, upon re-exposure to moldy vegetable dust. Exposure to dust is followed in six to eight hours by chills, fever, cough, and dyspnea. Dyspnea occurs in all patients. The breathing is shal-

low and rapid with difficult inspiration being the most prominent feature and is easily distinguished from the wheezing and obvious expiratory effort of an acute asthmatic attack. Crepitant rales and rhonchi may be evident on auscultation but there are no signs of consolidation.

There are no consistently abnormal laboratory findings. Chest x-rays show diffuse interstitial pneumonitis with patchy pneumonic densities. These densities gradually change from a diffuse ground-glass appearance to a finely reticular pattern and eventually clear if there are no subsequent attacks over a period of several months.

Pathologic features of the acute phase established by lung biopsy reveal a granulomatous interstitial pneumonitis of which caseation is not a feature. The alveolar septa are involved and are swollen with collections of lymphocytes and plasma cells. Biopsy at a later phase reveals no acute granulomatous reaction but a diffuse interstitial fibrosis in the alveolar walls and septa.

Pulmonary function studies indicate that the lung is stiff, resistant and moderately hyperinflated and that the alveolar capillary membrane is thickened. Reduction in the alveolar capillary diffusion capacity shows the most correlation with the severity of clinical symptoms.

The duration of the granulomatous reaction is unknown but the return of the pulmonary function studies and exercise tolerance to normal suggests that the lesion is a reversible one and does not lead to a significant degree of interstitial fibrosis unless repeated exposures occur.

The bulk of the clinical and experimental findings supports the hypersensitivity theory in regard to the etiology of farmer's lung, but it is still not known if the antigenic substance is the hay itself, a breakdown product of the hay, the mold spores, or metabolic by-products of the mold spores.

Since repeated exposure lengthens the period of recovery after each succeeding attack until there is permanent damage to the lungs and the patient becomes a pulmonary cripple with all the attendant disabilities, early diagnosis and prophylaxis, especially the avoidance of repeated exposure to mold dusts, is the most important form of treatment. Farmers who have demonstrated sensitivity to these products should not enter enclosures which contain these dusts, and if exposed in the open should be protected with adequate masks. For young persons a change of occupation is desirable. Antibiotics are helpful only in combating secondary invaders. Beneficial results have been reported from using iodides and from steroid therapy, but for the most part chemotherapy is unrewarding.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.



Progressive Cardiac Decompensation in a Woman With Findings of Mitral Stenosis

This 50-year-old white woman was admitted to KUMC for the first time with the chief complaint of fatigue. She had seemed to be in good health until about one year before admission at which time she began to notice excessive fatigue and shortness of breath with exertion. She later developed ankle edema, and about six months before admission she had orthopnea and episodes of paroxysmal nocturnal dyspnea. She improved after treatment by her family physician. At the time of admission she complained only of tiring easily.

She had had an appendectomy at the age of 21, and a uterine suspension at the age of 46. There was no history of rheumatic fever. Her family history was noncontributory.

The patient was a thin, white woman who appeared to be chronically ill. Her blood pressure was 116/75; pulse, 80; respiratory rate, 16; weight, 90 pounds; and height, 61 inches. The head, eyes, ears, nose and throat were normal. The chest was clear. The heart rate was 80 per minute, and there was a regular rhythm. The precordium was quiet. The first sound at the apex was accentuated; the second sound was clearly split. An opening snap was described followed by a grade 2 diastolic rumble with presystolic accentuation. There was a diastolic thrill at the apex. The remainder of the examination was not remarkable.

Edited by Jesse D. Rising, M.D. and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, gynecology and obstetrics, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

The pH of the urine was 7; the specific gravity was 1.005, and there was no albumin or sugar. There were occasional pus and epithelial cells per high power field. The white blood count was 6,300 with 74 per cent filamented neutrophils, 20 per cent lymphocytes, 1 per cent eosinophils, and 5 per cent monocytes. The platelet count was 208,000. The hemoglobin was 12.5 gm. per cent, and the hematocrit was 40. The VDRL was nonreactive. The blood urea nitrogen was 13 mg. per cent; blood sugar, 76 mg. per cent; sodium, 142 mEq/L; potassium, 3.3 mEq/L; chloride, 100 mEq/L, and CO₂, 26.1 mEq/L. The prothrombin time was 65 per cent. The sedimentation rate was 24 mm. in 60 minutes. The serum cholesterol was 207 mg. per cent (esters 66 per cent); total serum lipids, 590 mg. per cent; alkaline phosphatase, 1.3 units per liter; total bilirubin, 0.6 mg. per cent; total protein, 6.55 gm. per cent (albumin, 3.95; globulin, 2.6); and the cephalin flocculation was 3 plus.

Two days after admission the patient underwent cardiac catheterization. The right ventricle and pulmonary artery pressures were 35 mm. Hg. The mean left atrial and mean left pulmonary artery wedge pressures were 15 and 16 mm. Hg. The cardiac index was 2.7 L/min/M². The left atrial pressure tracing showed a small A wave, large C and V waves and a rapid Y descent. The patient was discharged the day following cardiac catheterization.

Seven months later the patient was admitted a second time with a chief complaint of nausea and vomiting.

She had been doing reasonably well on medical

management until about three weeks before admission when she began to have nausea and vomiting—usually following meals. She denied food intolerance, jaundice, dark urine or light stools. She had epigastric pain with the vomiting and what she described as a sensation of substernal “dryness” which radiated into the neck. With the onset of the present illness she developed orthopnea, paroxysmal nocturnal dyspnea and ankle edema. The patient experienced occasional blurring of vision with exercise. She also had a dry hacking cough, but she denied hemoptysis.

She appeared to be chronically ill. Her blood pressure was 185/55; pulse rate, 96; respiratory rate, 24; and weight, 83 pounds. There was venous distention of the neck. The chest was clear. The point of maximal cardiac impulse was in the 5th or 6th intercostal space in the midclavicular line. A grade 2 systolic thrill was palpable over the entire precordium. The first sound at the left sternal border was accentuated. The second sound was split. The second pulmonary sound was greater than the second aortic sound. A fourth sound was heard at the left sternal border. An opening snap was also described at the left sternal border. A harsh grade 3 pansystolic murmur was heard at the apex, left sternal border, base and axilla. A grade 3 diastolic rumbling murmur with presystolic accentuation was heard at the apex. No organ enlargement or masses were noted in the abdomen. Some epigastric tenderness was described. Three plus pedal edema and 1 plus pretibial edema were present in the extremities. Neither clubbing nor cyanosis of the digits was observed.

The urine pH was 6.5; specific gravity, 1.015. There was a heavy trace of albumin, but no sugar. There were 6-8 pus cells and 2-4 red blood cells per high power field and the hematest was positive. The white blood count was 9,700 with 65 per cent filamented neutrophils; 29 per cent lymphocytes, 2 per cent eosinophils, and 4 per cent monocytes. The hemoglobin was 15.3 gm. per cent, and the hematocrit was 47.5. The VDRL was nonreactive. The blood urea nitrogen was 18.5 mg. per cent; creatinine, 1.0 mg. per cent; blood sugar, 108 mg. per cent; sodium, 140 mEq/L; potassium 3.2 mEq/L; chloride, 98 mEq/L; and CO₂, 27.5 mEq/L. The total protein was 6.24 gm. per cent (albumin, 3.58; globulin, 2.66); serum cholesterol, 161 mg. per cent with 51 per cent esters. The venous pressure 18 cm. saline; arm to lung circulation time, 22 seconds; arm to tongue circulation time, 20 seconds. The protein bound iodine was 6.2 mcg. per cent; total bilirubin, 1.4 mg. per cent; direct bilirubin, 0.3 mg. per cent; amylase, 110 units per cent; SGOT, 41 units per ml. The sedimentation rate was 14 mm. in 60 minutes. The alkaline phosphatase was 1.3 units per liter. The I¹³¹ uptake was 15 per cent.

The patient continued to have nausea and vomiting following admission. Her weight increased to 87½ pounds on her seventh hospital day, but it dropped to 75½ pounds following diuresis. At the time of discharge the nausea, vomiting, and abdominal pain had subsided, and the cardiac rhythm was regular. There was a grade 3 pansystolic murmur at the apex that was transmitted to the axilla. A loud third sound was present. No opening snap or diastolic murmur was heard at that time. No edema was evident. Cardiac surgery was recommended, but the patient elected to postpone her decision.

Five weeks later the patient was admitted for cardiac surgery. This was her third admission. She had had occasional nausea and vomiting following her previous hospitalization, but this had subsided one week before her admission. For the past week she had had ankle edema and dyspnea with exertion.

Her blood pressure was 95/65; respiratory rate, 20; and weight, 76 pounds. There was moderate venous distention in the neck. The chest was clear. The point of maximum cardiac impulse was in the 5th intercostal space at the midclavicular line. A grade 2 systolic thrill was felt over the precordium. A grade 4 apical pansystolic murmur was heard at the apex, and it was transmitted to the axilla. A grade 3 apical diastolic rumble with presystolic accentuation was present. A grade 2 diastolic murmur was heard at the left sternal border. A loud fourth heart sound was heard, a third heart sound was present at the apex. No opening snap was heard. The liver was 3 cm. below the right costal margin on inspiration. There was 4 plus pedal edema and 2 plus pretibial edema. The pH of the urine was 6. There was 1 plus albumin with 40-50 pus and 2-3 red blood cells per high power field and 1-2 pus casts per low power field. There was no sugar. The white blood count was 10,376, with 73 per cent filamented neutrophils, 21 per cent lymphocytes, and 6 per cent monocytes. The hemoglobin was 11.9 gm. per cent with a hematocrit of 42.5. The VDRL was nonreactive. The blood urea nitrogen was 48 mg. per cent; creatinine, 1.7 mg. per cent; sugar 105 mg. per cent. The sodium was 134 mEq.; potassium, 3 mEq.; chloride, 93 mEq.; and CO₂, 22 mEq/L. The SGOT, 20 units per ml. The sedimentation rate was 15 mm. in 60 minutes. The alkaline phosphatase was 1.2 units per liter; total bilirubin, 1.8 mg. per cent; direct bilirubin, 0.5 mg. per cent; total protein, 5.11 gm. per cent; albumin, 3.17 gm. per cent; globulin, 1.94 gm. per cent; cholesterol, 147 mg. per cent with 64 per cent esters.

The patient was nauseated and vomited her oral medications. Her liver showed progressive enlargement and her weight increased to 79 pounds. Cervical venous distention was present even in the erect posi-

tion. On the fifth hospital day her respiration became labored, and at 8:00 p.m. cardiac arrest occurred. Following external cardiac massage she developed a normal sinus rhythm, and was able to breathe unassisted. A second cardiac arrest occurred at 9:15 p.m., and resuscitative measures failed. The patient was pronounced dead at 9:30 p.m.

Dr. Mahlon Delp (moderator): Are there any questions?

Roy Hartley (student):* On fluoroscopy was any calcification seen of any valve leaflets or pericardium? Was there systolic expansion of the left atrium?

Dr. Patrick McCann (a resident in medicine at the time, and now in the private practice of medicine): This was not noted. No valve calcification was reported. I do not recall comments about expansion of the left atrium. I did not see this patient, and can report nothing from personal observation.

Arthur Fromm (student): Was the patient febrile during any of her admissions? What was the character of the radial pulse, and was an irregular cardiac rhythm ever described?

Dr. McCann: There was no comment made about any unusual characteristics of the radial pulse.

Jon Holman (student): Was there any change of a murmur with change of position of the patient?

Dr. McCann: That was never commented on.

Robert Chow (student): A split second sound was said to have occurred on two different hospitalizations. Did you think this was a pathological split or a normal one?

Dr. McCann: There was nothing commented on in the chart. Again, I did not see the patient, so I cannot say.

Mr. Hartley: Was there an ASO titer or C-reactive protein done on any of her admissions?

Dr. McCann: I do not believe so.

Mr. Hartley: Was there a family history of rheumatic fever?

Dr. McCann: No, there was not.

Mr. Fromm: Was a friction rub ever heard?

Dr. McCann: One was never reported.

Mr. Holman: Was an LE cell preparation done?

Dr. McCann: I do not believe so.

Mr. Chow: Were rales heard during any admission?

Dr. McCann: The chest was always described as clear.

Mr. Hartley: Were auditory disturbances ever described on her second admission?

Dr. McCann: Not on the second admission.

Mr. Fromm: I would like a better description

of the blurring of vision in relation to exertion.

Dr. McCann: The system review stated that she had had occasional blurring of vision with exercise. There was no further comment.

Mr. Holman: What was the patient's normal or usual weight?

Dr. McCann: She was described as always small and thin. There was no mention of what her weight had been at various times in her past life. She weighed 89 pounds on her first admission.

Mr. Chow: Was chest pain associated with the terminal episode?

Dr. McCann: No, I do not think so.

Mr. Hartley: Was the urine sample a catheterized specimen?

Dr. McCann: It was a clean, voided specimen.

Mr. Fromm: Was a complement fixation test done, or were blood cultures or virus isolation studies ever done?

Dr. McCann: No, they were not.

Mr. Fromm: Was the thymol turbidity test done?

Dr. McCann: Yes, it was low.

Mr. Holman: Is there a history of unusual exertion between the first and second admissions?

Dr. McCann: None was recorded.

Dr. Robert T. Manning (internist): In the time between hospitalizations was she given diuretic medication?

Dr. McCann: Yes, she was on intermittent oral diuretics.

Electrocardiograms

Mr. Holman: The first electrocardiogram was made on her initial admission (*Figure 1*). The rhythm is normal sinus. The rate is approximately 85. In leads II, AVF, and V4 there is cupping of the ST segments. I have no explanation for the unusual waves at the present time. I would interpret this electrocardiogram as being compatible with digitalis effect. In the electrocardiogram taken on her second admission the rhythm is normal sinus, with approximately the same rate (about 90) (*Figure 2*). The indications of digitalis effect are still present. In the lateral precordial leads, we see deep S waves which I would interpret at this time as being indicative of right ventricular hypertrophy and continuing digitalis effect. I believe in lead II we begin to see a little peaking of the P wave and possibly broadening. Also in leads V1, 2, and 3 we see a diphasic P wave. I would interpret this diphasic P wave as being compatible with mitral stenosis. We see the continuing digitalis effect. The last EKG I have to present was taken on the day of death, and is a series of lead II. The initial strip shows a tachycardia of approximately 120. In the third strip there is a prolongation of the PR interval which I would interpret to be evidence

* Although a student at the time of the conference in January, 1963, he, like the others referred to as students, received the M.D. degree in June, 1963.

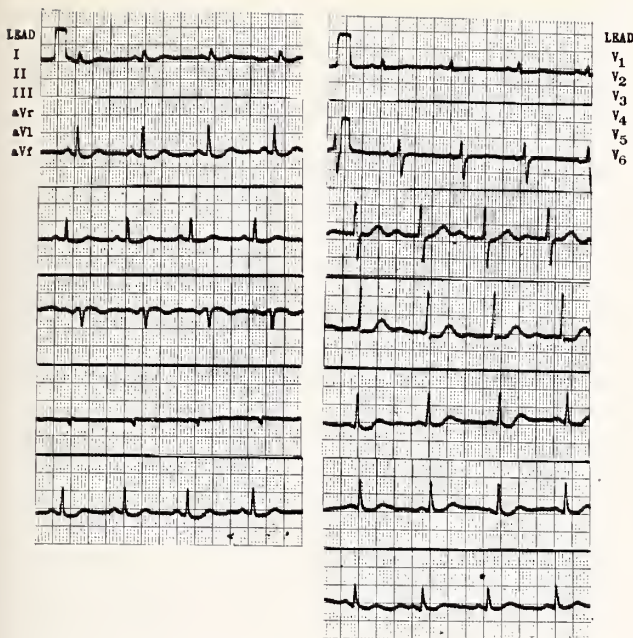


Figure 1. Electrocardiogram taken on June 27, 1961.

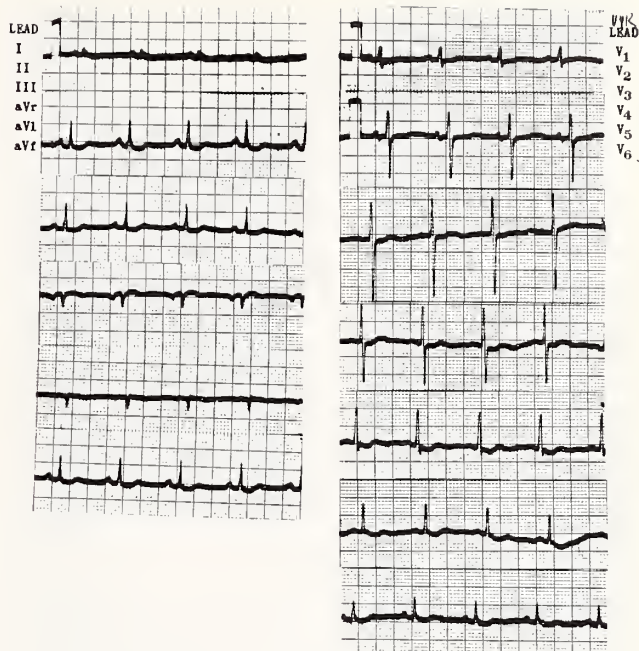


Figure 2. Electrocardiogram taken on February 4, 1962.

of first degree AV block. In this strip there is evidence of multifocal ventricular premature beats, and from there on out I could only interpret this as evidence of a failing myocardium. This was done, I assume, when the patient was being monitored on the final day. The tracings progress to cardiac arrest.

Dr. Delp: Do you have any comments about these, Dr. Dunn?

Dr. Marvin I. Dunn (cardiologist): The last series of lead II just shows deterioration going from a sinus rhythm to a nodal rhythm developing varying degrees of heart block and ventricular tachycardia. In the preceding EKG the striking thing is the fact that the P waves gradually became more prominent, particularly in lead V1. It was mentioned that this was a diphasic P wave but the negative components, which is a reflection of left atrial depolarization, became larger through this series of tracings. This would be quite compatible with mitral stenosis, but anything that would give left atrial enlargement could produce this. This, accompanied by a prominence in the R wave in V4R, is suggestive of right ventricular hypertrophy. It is the type of tracing seen not infrequently with mitral stenosis.

X-Rays

Mr. Fromm: We have three sets of x-rays taken on this patient during her three admissions. The first set was taken on June 27, 1961. There are no bony or soft tissue abnormalities. The costophrenic angles are clear. The lungs are clear. There is some slight prominence of the cardiac shadow to the right of the hilum due to left atrial enlargement. The

right ventricle is enlarged. There are prominent bronchovascular markings. These findings are compatible with mitral stenosis. In the lateral, taken at the same time, there is enlargement of the heart posteriorly which would also be compatible with left atrial enlargement. The second x-ray (Figure 3) was taken on January 31, 1962, and shows enlargement of the pulmonary artery, the left atrium, the right ventricle and left ventricle. Otherwise, the x-ray is the same as the previous one. I think these are compatible with either mitral insufficiency or mitral stenosis. The film taken on her last admission shows posterior bulging of the heart, and I think this is compatible with left atrial enlargement as well as left ventricular and right ventricular enlargement. A barium swallow on the second admission showed impingement of the heart upon the esophagus which would also be compatible with left atrial enlargement.

Dr. Delp: Dr. Germann, do you have comments about these?

Dr. Donald R. Germann (radiologist): I just wanted to make one point of a sign which we think is helpful in differentiating between mitral stenosis and mitral insufficiency. This is not 100 per cent accurate, of course, but it is one that is at least looked for. In the barium swallow showing the position of the esophagus in reference to heart margins, the left auricle does displace the esophagus slightly posteriorly. As you come on down to the level of the left ventricle, you note that there is a clear space between the level of the esophagus and the heart. This would imply that the left ventricle is not particularly large. If the left ventricle were large it would be seen be-

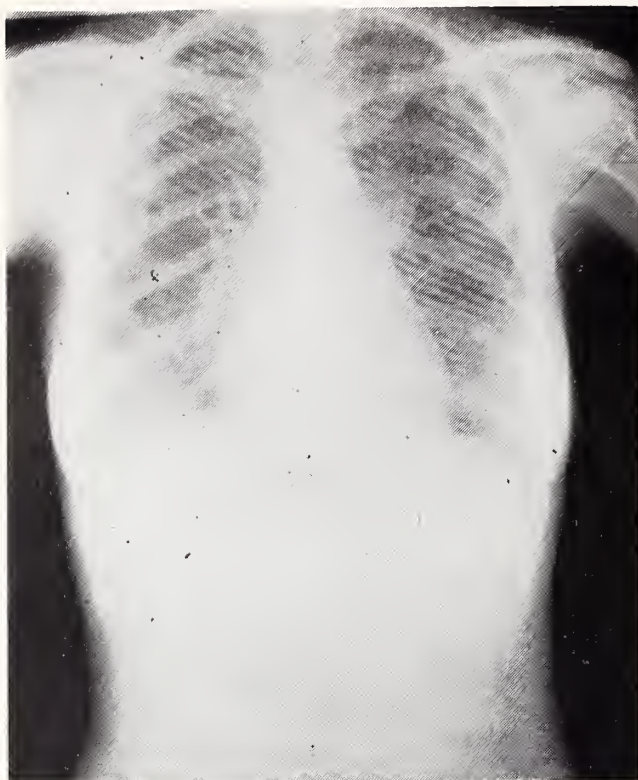


Figure 3. Posterior-anterior film of chest made on January 31, 1962.

hind the level of the esophagus. From my standpoint this would be left auricular enlargement with minimal, if any, left ventricular enlargement and with prominence of the right ventricle which would imply stenosis rather than insufficiency.

Discussion

Mr. Chow: The case for presentation today is that of a 50-year-old white woman who was seen in this hospital on three different occasions. Her course was characterized by signs and symptoms of progressive cardiac decompensation culminating in cardiac arrest on her last admission. Our differential diagnosis is based on the typical findings in valvular heart disease. We believe that this patient had rheumatic heart disease, and our discussion today will be a consideration of the signs, symptoms, catheterization and auscultatory findings in the downhill course of this patient. Before her first admission the patient had exhibited signs of left and right heart failure which subsided with treatment by her family physician. In the first admission the accentuated first heart sound, clear split second sound, and opening snap followed by a diastolic thrill pointed to a diagnosis of mitral stenosis. Catheterization studies showed an elevated right ventricular pressure, an elevated pulmonary artery pressure, an elevated mean left atrial pressure, and an elevated left pulmonary artery wedge pressure consistent with both mitral stenosis and insufficiency. The

left atrial pulse pressure tracings show a small A wave, large C and weak B waves and rapidly wide descent indicate a mitral insufficiency was also present and we feel this was the hemodynamically significant mitral lesion. Mitral stenosis is practically always of a rheumatic origin.

Lesions simulating mitral stenosis include myxoma of the left atrium, constrictive pericarditis, constrictive endocardial sclerosis, pectus excavatum and other thoracic cage deformities, verrucous endocarditis of systemic lupus erythematosus, atrial septal defects, subacute bacterial endocarditis, thyrotoxicosis, and ball-valve thrombus of the left atrium. We rule out myxoma of the left atrium because of the consistency of the murmur, no variation in the clinical status on position change, and a favorable response to medical management at first. We exclude the remainder because of a lack of typical physical, x-ray, and laboratory findings, and because of an atypical clinical course rarely produced by these.

Lutembacher's syndrome which consists of atrial septal defect and mitral stenosis, either congenital or rheumatic in origin, is consistent with the above findings except for the lack of a systolic murmur accompanied by a thrill on the left sternal border earlier in the patient's course. We cannot definitely rule this out, but we feel that our diagnosis is better.

Several months later the patient presented the chief complaint of nausea and vomiting, and with the signs and symptoms of congestive heart failure. The findings of mitral stenosis were again present. In addition there was a harsh grade 3 pansystolic murmur heard at the apex, left sternal border base and axilla, and a grade 2 systolic thrill was palpable over the entire precordium. We believe these findings are consistent with mitral insufficiency. We rule out tricuspid insufficiency because of the location of the murmur and the failure of accentuation of the murmur during inspiration. We rule out aortic stenosis because of the character, location, and transmission of the murmur.

The diagnosis of mitral insufficiency due to non-rheumatic causes is based on the sudden development of a loud apical systolic murmur in course of bacterial endocarditis, myocardial infarction, or after penetrating or non-penetrating chest injury, or after an unusually severe exertion. The above may cause spontaneous rupture of mitral chordae or papillary muscles giving rise to signs and symptoms of mitral insufficiency followed by a rapid, downhill course. These causes can be ruled out because of lack of typical history and because of the laboratory findings. By the end of her second admission no opening snap or diastolic murmur was heard. The disappearance of the diastolic murmur is often a sign of clinical improvement. The appearance of a louder third sound indicates a worsening of mitral insufficiency.

Five weeks later the patient was admitted for cardiac surgery, and was again exhibiting signs of cardiac decompensation. The apical pansystolic murmur and the systolic thrill were still present, and the apical diastolic rumble with presystolic accentuation had reappeared. A grade 2 diastolic murmur was heard at the left sternal border for the first time. Graham Steell described this murmur in 1889. It is caused by dilatation of the pulmonary artery resulting in pulmonic incompetency. This dilatation is caused by persistent, elevated left atrial pressure and concomitant pulmonary hypertension. Progressive liver enlargement, increasing peripheral edema, and labored respirations were manifestations of a rapid, failing myocardium.

In summary, we believe that this patient had rheumatic heart disease with mitral stenosis and insufficiency (predominately insufficiency) leading to a left and right heart failure which progressed to the terminal event of a cardiac arrest.

Dr. Delp: Thank you, Mr. Chow. Your diagnosis?

Mr. Hartley: Predominate mitral insufficiency due to rheumatic heart disease.

Mr. Fromm and Mr. Holman: The same.

Dr. Delp: Do you have a second diagnosis?

Mr. Hartley: I think it was Lutembacher's syndrome.

Mr. Fromm: It could be the rupture of the papillary muscle or microchordae with progressive downhill course.

Mr. Holman: I think it is possibly a mitral stenotic type of lesion.

Mr. Chow: Lutembacher's.

Dr. Delp: Now a few other questions. Would you comment, Mr. Hartley, about the fact that this patient had no history of rheumatic fever?

Mr. Hartley: About 50 to 60 per cent of the patients who show rheumatic heart disease at autopsy do not give a history of having any previous rheumatic fever.

Dr. Delp: Mr. Fromm?

Mr. Fromm: I can't add anything to that.

Dr. Delp: Mr. Holman, you do not really think it was too important.

Mr. Holman: No, as Mr. Hartley pointed out.

Dr. Delp: Now, Mr. Hartley, would you comment concerning the fact that this patient had a normal sinus rhythm up until two or three hours before she died?

Mr. Hartley: I think the only answer would be that there were not too many changes in the area of the sinus node due to the rheumatic process.

Dr. Delp: Mr. Fromm, how would you rationalize this?

Mr. Fromm: I think with the mitral stenosis, the left atrial enlargement, you would expect the auricular

fibrillation. Sometimes it is common with this, however, if the sino-auricular node is not involved you would not have this.

Dr. Delp: According to the protocol she was 50 years of age. At 49 years of age she had her first evidence of heart failure rather suddenly with symptoms of paroxysmal nocturnal dyspnea. She had to sit up in the bed; get out and walk around. She also had nausea. The point I wish to make is that this started at the age of 49. Do you have any problems weaving this into the story?

Mr. Chow: With the rheumatic process, one usually has the disease early in childhood, and it takes a significant time to develop the first signs of failure.

Dr. Delp: About when do they usually develop the first evidence of failure? At about 43?

Mr. Chow: I think 10 or 15 per cent show it in their 50's.

Mr. Holman: When the signs and symptoms begin to appear this is a sign that significant sclerosis has already taken place. There are no symptoms along the course of the development of the stenosis of the valve so that by the time the symptoms do appear the course thereafter is usually rapidly downhill.

Dr. Delp: Now, Mr. Hartley, I would like to have you comment concerning digitalis as it might have a bearing on this state of the problem, or as it was used, or anything you wish to say about it.

Mr. Hartley: I think that when she was seen on her first hospitalization she was pretty well compensated by the previous digitoxin that the local physician had given her. I believe that with her second admission the changes in her myocardium were such that the digitoxin was not as beneficial as it should have been. She might have been in digitoxin intoxication at that time also.

Mr. Fromm: I believe that she did have a low potassium that sensitized the myocardium to digitalis effect. Therefore she did have digitalis intoxication much quicker on the same dosage. It has been shown with radioactive potassium that patients with long standing congestive heart failure do have a depletion of potassium from the body. We also know that chlorothiazide depletes the potassium from the body.

Dr. Delp: Now a couple of simple questions. What about the blurring of vision, Mr. Hartley?

Mr. Hartley: I think it has been shown with the use of the nitrous oxide test that people with congestive failure have about a 40 per cent decrease in cerebral vascular flow. This could be an hypoxic change, or it possibly could be due to digitalis intoxication.

Dr. Delp: Interestingly enough, in this patient's history, her chief complaint was nausea and vomiting which had its onset at the same time as her paroxys-

mal nocturnal dyspnea. When she became dyspneic, she became nauseated and vomited. Do you have an explanation for this, Mr. Fromm?

Mr. Fromm: She could have had venous engorgement of the viscera which commonly gives symptoms of anorexia and abdominal distension, and this would go along with her congestive heart failure.

Dr. Delp: Dr. Hayes, may we have your discussion?

Dr. William L. Hayes (internist): I saw this woman before her death. At that time I thought she had a straightforward case of chronic rheumatic mitral valvular disease. In reviewing these findings, however, there are several inconsistencies that make this diagnosis doubtful. In the first place, it is a bit unusual for a woman to have the onset of symptoms from mitral valvular disease at age 49, and to progress rapidly to death in 18 months. They commonly have rheumatic fever when they are 13; they have the onset of symptoms when they are 33; and they then progress over the next ten years to the final stage. On her first admission, she had the physical findings of mitral stenosis, but she had the catheterization findings of mitral regurgitation—another inconsistency. Seven months later her physical findings were more that of mitral regurgitation than mitral stenosis. I think this is a bit unusual. Furthermore, although on her latter admission she had the physical findings of mitral regurgitation, nothing in her electrocardiogram or x-ray suggested the left ventricular hypertrophy that we would expect with mitral regurgitation. Whenever you find inconsistencies of this kind in a case you should not be confident of your diagnosis until you have explained them, and I do not believe I was that critical in my thinking about her. I also think that the maintenance of a sinus rhythm up to the last day of life is unusual for rheumatic valvular disease.

Dr. Delp: May we have your comments, Dr. Berry?

Dr. Maxwell G. Berry (internist): I have a feeling that Dr. Delp has been trying to get me out on a limb all year, and I think he has got it this time. This is a rather unusual sort of a clinical problem when you get to looking at it. It could be just a straightforward mitral stenosis. I suppose I have to diagnose Dr. Delp too, and I have the feeling that he felt that most of us who have been around a while would go back under the cover of the most likely possibilities and just depend on the odds to get us out of a jam as they might in this case. I think the students probably ducked into this too. Maybe that is all there is to it; I hope so. It seems to me that there is enough variation about this patient, enough things about her which are different than you see with the average patient of mitral stenosis, to make one real

suspicious that he might be overlooking something.

To come right down to the point and get my neck way out, I think this patient had something very unusual in her left atrium. When I first looked at it I thought she probably had a ball valve thrombus, but she had none of the things which usually go with it. I do not want to repeat the things that Dr. Hayes said, but I will say that I absolutely agree with all of them. It is a likely possibility that this patient had an atrial myxoma which was pedunculated and which caused the unusual symptoms which she had and resulted in her death. Her death probably also was contributed to the fact that she had a lot of oral diuretics, a low potassium and a lot of digitalis. This produced ventricular irritability and can produce it to the point of demise.

Dr. Delp: Dr. Manning, you manifested some interest by asking a question. Now, would you comment concerning this patient?

Dr. Manning: I think the reason for the question has already been alluded to and that is the hypokalemia that this patient had. She ended up with a serum potassium on her last admission of 3 mEq. per liter. A likely cause for this would have been that she was on the thiazide diuretic during the interim between her hospitalizations, and that this may well have been a direct precursor of the arrhythmias that she showed. In addition, she showed a change in blood urea nitrogen from 13 to 48.5. The rise of creatinine to 1.7 which might have been hypokalemic nephropathy also occurring in the patient. I would agree completely with Dr. Hayes' and Dr. Berry's comments. The first thing that struck me was in the clinical examination. All findings that were described said the precordium was quiet. This strikes me as somewhat unusual. In someone who has a mitral stenosis or mitral regurgitation you would expect to feel some sort of ventricular heave or ventricular impulse. It was quiet. In addition her heart does not seem on x-ray to be like the one that is described in the protocol. It is relatively small for someone who you would think would be in severe congestive heart failure. This leads me to wonder if she did not have some restrictive lesion in her heart which was producing the findings that we see and in addition restricting the mobility of her heart. This might be fibroelastosis or pericardial constriction.

Pathology Report

Dr. John M. Nichols (pathologist): Dr. Delp, I noticed several times during the discussion that the students invoked the phenomenon of "going downhill and dying." I wonder if that could be applied to patients who die in hospitals built at sea level!

Departing from the usual procedure, we may first consider the brain which was thought to be normal

on gross examination. Microscopic examination, however, revealed several areas of insipient softening of random distribution where the neurons had lost their shape, showed cytoplasmic changes, and did not have their usual staining qualities. These were interpreted as anoxic changes. Adjacent to these areas there were dilated vessels with stagnant blood and an accumulation of polymorphonuclear leukocytes suggesting an impairment of blood flow along the course of the vessel, either upstream or downstream. Thrombi and emboli were not found in the brain parenchyma in the sections studied, but some meningeal vessels contained diagnostic emboli as can be seen in *Figure 4*. The section shows a meningeal artery containing a



Figure 5. Main mass of myxoma filling left atrium (after Nichols and Hennigar with permission A.M.A.).

have broken off. The tumor occupied considerable space in the left atrium; in the standing position, it would hang very close to the mitral valve, and during life with flowing blood, probably did protrude into the mitral valve. All of the valves of the heart were considered normal, and only the right ventricle showed hypertrophy. The endocardium, myocardium and pericardium were normal with about 40 ml. of straw-colored fluid in the pericardial sac.

The remainder of the autopsy revealed only slight congestion of the lungs and liver and a few focal areas of nephrocalcinosis although the parathyroids were grossly and microscopically normal.

This autopsy was done by another pathologist, and the organs were inadvertently discarded by the retiring curator of the museum before photographs were taken. However, the heart had an appearance very similar to that shown in *Figure 5* taken from a previous publication. *Figure 6*, also from the same publication, shows emboli recovered from the bifurcation of the aorta, in a similar case. Portions of the tumor detached after autopsy had an identical appearance. It is easy to understand the lethal nature of complications from these tumors. Microscopically, these tu-

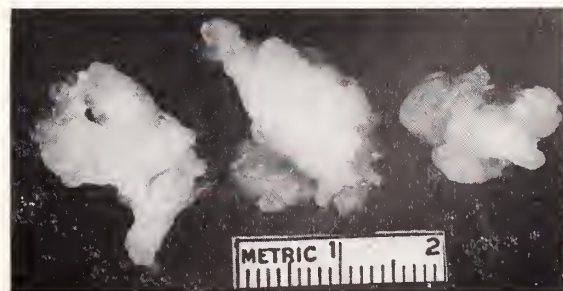


Figure 6. Detached emboli from cardiac myxoma (after Nichols and Hennigar with permission A.M.A.).

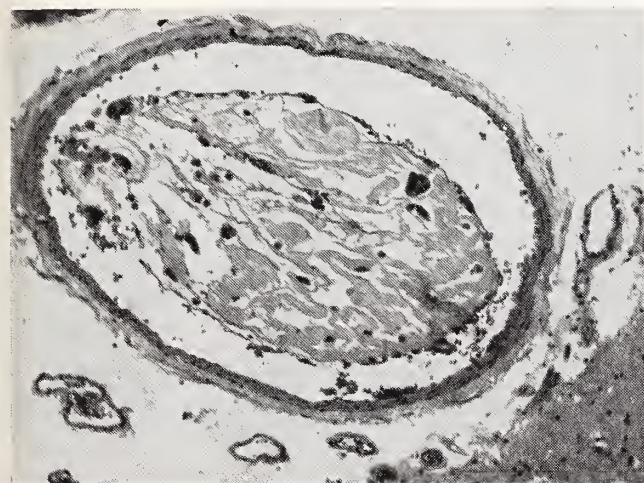


Figure 4. The section shows an artery of the pia filled with an embolus from the myxoma of the left atrium. The loose myxoid stroma, stellate cells, and endothelial covering are characteristic of cardiac myxoma. Hematoxylin and eosin.

structure composed of loose mesenchymal, myxoid-like stroma with a few large multinucleated cells and covered with an endothelial surface. This is diagnostic of a cardiac myxoma to those who have previously seen such a finding. This is a recent phenomenon, probably agonal, because there is no cellular reaction of the vessel which contains the embolus. The spaces indicating that the embolus does not completely fill the vessel is due, in part, to different degrees of shrinkage during fixation. None of the other organs in the body showed such emboli, although undoubtedly some would have been found if enough microscopic sections were taken.

The heart weighed 260 grams. The most conspicuous finding was a 34 gram myxoma hanging from a short gelatinous pedicle attached to the intraatrial septum at the posterior margin of the limbus of the closed foramen ovale. This mass was a yellowish glistening gelatinous cauliflower-like tumor with no obviously apparent rough surfaces where emboli might



Figure 7. Microscopic section of typical area from myxoma $\times 500$, Hematoxylin and eosin (after Nichols and Hennigar with permission A.M.A.).

mors are composed of sellate mesenchymal cells (*Figure 7*) in a loose myxoid stroma and are covered by an endothelial surface continuous with that lining the atrium. They occur as pedunculated masses almost always near the imperfect closure of the foramen ovale.

The etiology of these tumors was formerly controversial. One school held the theory that they are the result of a "peculiarly organizing thrombus." The similarities of myxomas and thrombi have been compared by Mahaim as shown in *Table I*.

TABLE I
COMPARISON OF MYXOMAS
WITH THROMBI

<i>Myxoma</i>	<i>Organizing Thrombus</i>
Surface smooth, glistening, and transparent	Surface granular and opaque
Consistency soft and gelatinous	Substance friable and stratified
Stroma uniform, amorphous, colorless, and with but few cells, which are distributed at random and not in a syncytium or groups	Stroma composed of network of proliferating and organizing capillaries
Absence of hemosiderin in most of areas of most tumors	Hemosiderin and fibrin abundant
Mucin positive	Mucin negative
Elastic fibers present around vessels of tumor; pedunculated	Endocardial lesion at base of thrombus, wide base
Substance continuous and blends with myocardium, covered with endocardium	Demarcated from myocardium and not covered with endocardium
Located above left atrio-ventricular valves, especially at limbus of foramen ovale	Located in both auricles

Pritchard has found, by serial sections from the region of the foramen ovale, a high frequency of "cell rests" which may represent the etiological source of these tumors. The finding of bilateral and multicentric myxomas has tended to discredit the theory that they arise from thrombi. It is now generally agreed that they are true neoplasms arising from cardiac endothelium or parenchyma. They can be diagnosed during life and can sometimes be removed with varying degrees of completeness and success.

Pathologic Diagnosis

Myxoma of left atrium with emboli to meningeal

vessels with insipient cerebral softening
Hypertrophy of right ventricle
Nephrocalcinosis (focal, microscopic)
Passive congestion of lungs and abdominal viscera.

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TRAVEL HEALTH

Illness can dampen or ruin your summer vacation. That long awaited and keenly anticipated trip to the seashore or the mountains can be a complete dud if you get sick.

The American Medical Association offers a few pointers that will help you avoid illness and insure that your vacation is a period of fun and relaxation for all the family. This will help everyone get rejuvenated and ready to face another year.

Depending on where you are going, you may need some vaccination shots. Tetanus, certainly, for anyone who expects to include some out-of-doors activities. Typhoid, if your journey includes areas where the water supply is uncertain. Smallpox, if you're planning to leave the United States to visit a foreign land, and want to re-enter the United States.

Use common sense about your vacation diet. Many a family trip has been spoiled by too many roadside hamburgers and soft drinks. A sound rule while driving cross-country is to eat lightly. Be cautious about heavy, rich meals, particularly if you're not accustomed to such fare at home.

Know what sort of climate you will encounter at your vacation spot and dress accordingly. It can get cold in the mountains at night, even in mid-summer. Good walking shoes are important to the travel wardrobe.

If you wear glasses, take along an extra pair. Or, at least a copy of your prescription. If you're taking a regular medication, make certain of your supply before you leave.

And, finally, don't overdo it. Almost no one other than a trained athlete is ready for 36 holes of golf or five sets of tennis under a broiling sun. Schedule your vacation to allow daily rest periods. Do most of the driving in the morning hours and stop for the evening in early or mid-afternoon.

Your vacation should be a holiday for rest and relaxation. It should not be a grind that necessitates another vacation to rest up from the vacation.

The President's Message

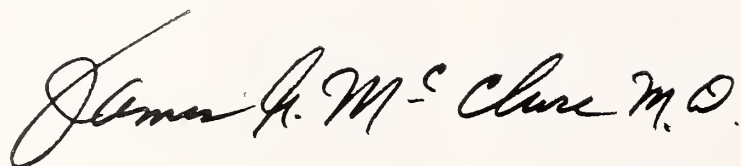
DEAR DOCTOR:

Title XIX, somewhat loosely described for sake of brevity, requires that eligibility and benefit standards, which are to be established by a state for those over 65, shall be applied also to those under age 65. A single state agency is to be designated to administer the program and recipients shall be assured that they will not be distinguished from those whose Medicare benefits are obtained outside Title XIX.

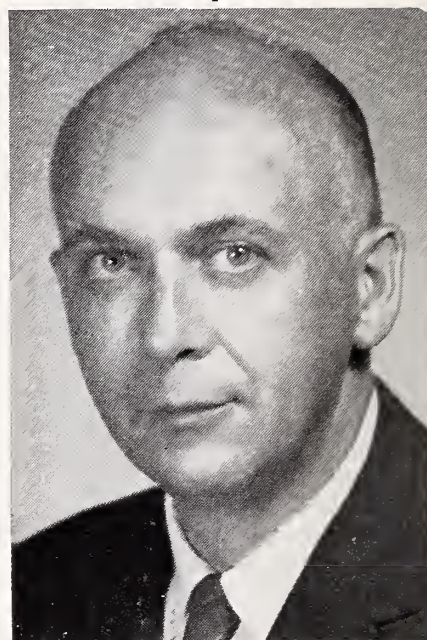
To accomplish this goal, the Kansas Medical Society recommends that the State Board of Social Welfare be given responsibility over certification of eligibility and that the State Board of Health be charged with making health services available to individuals in accordance with their need and under terms of their eligibility. If this creates interagency problems, it will at least relegate to each functions within the area for which they were created and in which they can presumably perform most efficiently.

Moreover, even if Welfare should attempt to provide service equal to the service of the designated carrier and fiscal intermediary already authorized to process claims for Medicare beneficiaries not under Title XIX, and even if their payment scale were identical, there would still be duplication of effort and Title XIX recipients would still be segregated and distinguishable from other citizens. Any additional variants, whatever these might be, would set such persons even farther apart as second class citizens which, according to H.E.W., is specifically to be avoided.

Sincerely,



President





C. Arden Miller, M.D.

Among the resolutions adopted by the House of Delegates in Wichita last month was the following which was unanimously and enthusiastically endorsed.

WHEREAS, C. Arden Miller, M.D., has performed an exceptional service to medical education during his tenure as Dean of the University of Kansas School of Medicine, and

WHEREAS, Through his continued efforts the relationship between the Medical School and the physicians of this state, long considered outstanding in the nation, have strengthened, therefore

Be It Resolved, The Kansas Medical Society expresses its regret that his personal interests determined him to resign, but with deep gratitude we acknowledge his service to medicine and welcome his continued activity in this Society when he returns to the role of professor.

The above was an expression of gratitude on the part of the Society for the many services Dr. Miller performed in behalf of medicine during his tenure as Dean of the Medical School. The Editorial Board wishes to add its expression of thanks to Dr. Miller for his support to the JOURNAL and the very significant contributions he and the members of his faculty have made. We wish him well during his coming year of study and look forward toward his return to this state.

1966 Kansas Relative Value Studies

The Committee on Fee Schedule, of which Kenneth L. Graham, M.D., was chairman and which consisted of some 35 members representing all specialties in medicine, including general practice, worked a year in the preparation of a revised relative value scale. This was presented to the House of Delegates in Wichita last May and approved. The new document is now in preparation and when completed will be mailed to each member of the Society.

The physician will find many changes in the 1966 version. The total point range has been expanded to

200 points from the previous 150. This allows for greater precision in evaluating the differential between procedures. More items are included than were found in the previous volume. Most of these were occasioned by improvement in procedure descriptions. A single listing in the 1961 version may now be expanded into several components. Another expansion will be found in the section on internal medicine. Considerable care was taken by the committee to give an accurate description for such services as physical examinations, intensive care, etc. It is suggested that physicians acquaint themselves, upon receipt of this new schedule, with the varying degrees of service that are defined so they will apply the item that is appropriate to the service they rendered.

Also new in the 1966 version will be the elimination of a column marked "Follow-up Care." In the past this has created occasional problems where third parties interpreted that conditions loosely related to the surgical procedure or not related at all should be covered within the surgical payment. Included will be a statement to the effect that surgeons will continue their usual custom of giving after-care within the fee charged for a surgical procedure, but that for the majority of circumstances this will be limited to a period of 14 days.

The introduction to the new volume will again caution its users that a relative value scale is not a fee schedule. It is an attempt to relate the worth of a single service to all others within the realm of medical care. The points listed were determined on the skill, the time and the expense required of the physician in the performance of the service. It is hoped the new document will be useful to young physicians as they begin their practice, to others when they assess a value to services infrequently performed, and to organized medicine at the county or state level when invited to negotiate a schedule of fees.

A relative value study is never a permanent document. It is always open for improvement. Certainly the 1966 version will contain inequities but just as

certainly this will be found to be more accurate than was the edition that preceded it.

AMA-ERF

The University of Kansas School of Medicine received a check last month of \$16,602.58 from AMA-ERF. All participating schools received an equal grant of \$2,853.44, or half this amount in the case of two-year schools, and the remainder represents money specifically earmarked. A rapid review of the annual report indicates that 13 schools from a total of 85 received larger amounts. Some 60 had less.

This speaks well for the physicians of Kansas and for the Auxiliary in contrast with efforts of other states, but is still far short of the potential. However good this record appears, there still were only 435 members of this Society who contributed, or a small number over one of five. A little additional interest in this program could reflect in a dramatic improvement. Beginning soon this will become very apparent.

The student loan part of this program will soon be self-sustaining. At the 12½ to one ratio, this fund is now capable of guaranteeing almost 40 million dollars worth of loans. As of December 31, 1965, 95 per cent of this fund was committed and repayment from the early loans points to a situation, soon to be reached, where this portion of the program can carry itself.

Therefore money contributed to AMA-ERF can now be concentrated for use in medical education and the Biomedical Research Institute. The University of Kansas School of Medicine is especially grateful for money from this fund because operating as a state school, with budgets prepared 18 months in advance—all of it specified, there is little or no resource for special needs that might arise suddenly or which can bring extra benefits to such projects as graduate education, for example.

So this is the year to improve the Kansas AMA-ERF campaign. The Shawnee County Society asks every member for a contribution and as a result has virtually 100 per cent participation. Perhaps other societies do the same without this fact having been noted. It is significant that almost half the total medical contributors to AMA-ERF are from the Shawnee County Medical Society.

The idea from this society is recommended to others in the state. Or if the 435 Kansas physicians who contributed last year would do so again and in addition obtain a gift to AMA-ERF from only four of their colleagues the entire state might achieve the support already given in Shawnee County.

It is, of course, no record that is being tried for, but an expression of assistance to the medical school in this state and in fact medical education throughout

the country. The usefulness of the contribution is self-apparent without further explanation. The size of the Kansas gift depends largely upon how many participated and this resolves itself to each physician who takes time to write a check to AMA-ERF and mails it to the AMA or to the state office as desired. The contribution may be of any size and designated to a particular school if desired. The important point of the moment is that all physicians share in this project and that they do so now while the subject is on their minds.

Myocardial Perforation

(Continued from page 309)

voltage, may have been a hint of improper electrode placement.

Two other instances of this complication have been noted in the literature,^{8,9} but neither has been the subject of a separate report.

Addendum

Since this report was submitted for publication, additional case reports have appeared in the literature. Fort and Sharp¹⁰ have reported two such cases and Nathan, et al.,¹¹ have reported nine cases.

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Personalities—IN KANSAS MEDICINE

George E. Paine, Hutchinson, presented a paper entitled "Dr. Oliver Wendell Holmes and Specialization in Medicine" at the 39th annual meeting of the American Association for the History of Medicine. The meeting was held in May at the Mayo Clinic.

Ross Grimes, Liberal, was the banquet speaker at the state convention of the Kansas Federation of Licensed Practical Nurses held in Liberal in April.

Leslie F. Eaton, Salina, has been elected a district vice-president of the Kansas State Chamber of Commerce.

The Hays Chamber of Commerce presented its Lighted Torch award to Murray Eddy at their meeting in May. The award, which is presented to outstanding members of the community, was given to Dr. Eddy for his "knowledge and deeds and general interest in people."

Barbara Lukert, Kansas City, has been named an instructor in medicine at the University of Kansas Medical Center.

William Tarnower, Topeka, was a speaker at the Mid-West Hospital Association convention held in Kansas City in April.

In April, Milburn W. Hobson, Shawnee Mission, moderated a panel of physicians on a radio program called "Answer Cancer, Doctor." The program was sponsored by the Johnson County unit of the Ameri-

can Cancer Society, and members of the panel included Terry Denison, Karl Hanson, and Stewart Hiatt, all of Shawnee Mission.

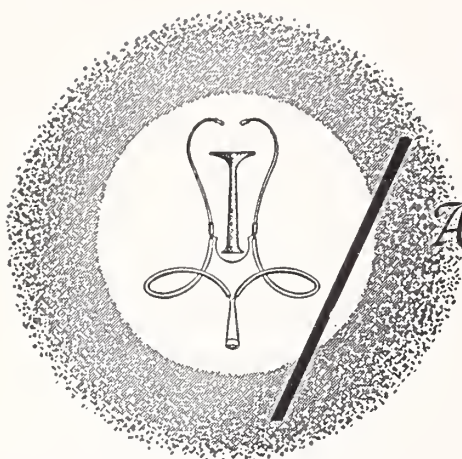
The first community-wide Mayor's Prayer Breakfast was held in Winfield in April. G. Gayle Stephens of Wichita was the featured speaker at the breakfast.

The community of Louisburg honored P. F. Gatley with a special "Recognition Day" in May. Dr. Gatley has served the people of Louisburg and the surrounding area for more than 65 years.

Ralph Hale, Wichita, was one of the speakers at the 22nd annual Congress of the American College of Allergists held in Chicago in April.

The Topeka Downtown Kiwanis Club presented the Liberty Bell award to John L. Lattimore at their annual Law Day observance in May. The award is given by the Young Lawyers Section of the Kansas Bar Association in recognition of non-lawyers who have made outstanding contributions to law or law enforcement. Dr. Lattimore was cited for his service as coroner in the Topeka area and for his work in the Legislature to update the state's coroner laws.

A "holiday for humanity" is what Paul A. Kaelson, Wichita, called his 30-day visit to the Isle of Utila, located off the eastern coast of Honduras. Dr. Kaelson spent the month of May there, ministering to the medical needs of the 1,800 residents.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

JUNE

- June 26 Annual AMA-ASHA Preconvention Session on School Health, Palmer House, Chicago. Write: Department of Health Education, AMA, 535 N. Dearborn, Chicago 60610.
- June 26 Conference of Presidents and Other Officers of State Medical Societies, Palmer House, Chicago. Write: J. A. Waggener, Exec. Secy., Indiana State Medical Association, 3935 N. Meridian, Indianapolis, for further information.
- June 26-30 115th annual convention of the American Medical Association, Chicago. The Scientific Program will be at McCormick Place and the House of Delegates will meet at the Palmer House.

JULY

- July 10-15 Annual Conference of the American Physical Therapy Association, Biltmore Hotel, Los Angeles. Write: Helen J. Hislop, Ph.D., Dir. of Conference Services, American Physical Therapy Association, 1790 Broadway, New York 10019.
- July 15-16 Annual Rocky Mountain Cancer Conference, Brown Palace Hotel, Denver. Write: The Rocky Mountain Cancer Conference, 1809 E. 18th Ave., Denver 80218.

AUGUST

- Aug. 12-13 National Conference on Infant Mortality, sponsored by AMA Committee on Maternal and Child Care, Fairmont Hotel, San Francisco. For information write: Secretary, Committee on Maternal and Child Care, AMA, 535 N. Dearborn, Chicago 60610.
- Aug. 24-26 13th Western Cardiac Conference, University of Colorado Medical Center, Denver. For information write: Colorado Heart Association, 1375 Delaware St., Denver 80204.

POSTGRADUATE COURSES

University of Colorado:

- July 11-14 *Ophthalmology* (Estes Park)
- July 18-23 *Annual General Practice Review*
- July 27-29 *Dermatology* (Aspen)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- July 25-29 *Interpretation and Therapy of Cardiac Arrhythmias*, Marriott Motor Hotel

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

KaMPAC*

**Kansas Medical Political Action Committee*

DEAR DOCTOR:

During the annual meeting of the Kansas Medical Society in Wichita, I was asked many questions about KaMPAC.

One of the most important was, "What happens to the money I contribute to KaMPAC?" As you know, this is a contribution in behalf of good health legislation. Your money is in the hands of the following Board of Directors for 1966:

Dist. No. 1

C. V. Black, Pratt
L. S. Nelson, Salina
Marvin Gunn, Salina

Dist. No. 2

W. R. Lentz, Topeka
E. R. Yoder, Denton

Dist. No. 3

H. F. Coulter, Mission
R. F. Schneider, Kansas City

Dist. No. 4

C. T. McCoy, Hutchinson
C. Pokorny, Halstead
J. W. Warren, Wichita
Mrs. F. C. Newsom, Wichita

Dist. No. 5

H. L. Bogan, Baxter Springs
T. P. Butcher, Emporia
Bruce Smith, Arkansas City

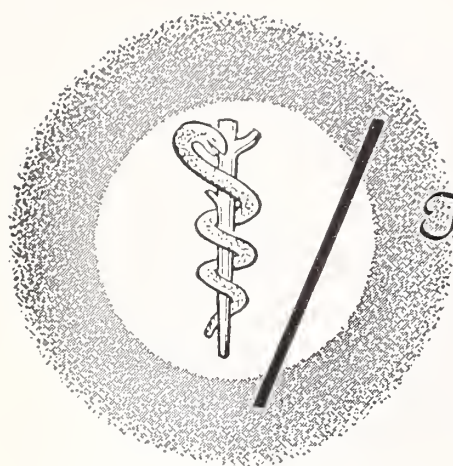
We ask you to place your confidence in this Board for wise and prudent expenditure. Many times, because of the size of the contribution, more good can be achieved by a donation from an organization such as KaMPAC than by an individual's support of a candidate.

The members of the Board will be happy to answer any questions you may have, and WE CAN USE MORE MONEY. Therefore, I urge those of you who have not done so to become members of KaMPAC without delay.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

YOUR GOOD PHYSICIAN TO NEED SKILLED HELP

Kansas is not alone in being short of doctors. All over the nation, communities are seeking more physicians.

The demand is expected to increase as the Medicare program gets underway and as we begin to provide better medical and nursing care for the elderly sick, care they always should have had.

In this state, the shortage has prompted several proposals.

One is to increase the number of physicians graduated from the University of Kansas school of medicine by enlarging the classes.

Another is to lower the requirements of basic science examinations so that they are easier to pass and so that foreign doctors may be allowed to practice in Kansas.

Whether either of these proposals is practical or desirable must be left to professional judgment.

There is another alternative, however, that does have medical school endorsement: the greater use by physicians of highly skilled nurses.

Nurses, of course, also are in short supply. They may be trained more quickly and less expensively, however, than doctors of medicine. Women by their nature are particularly apt at the healing arts, and a large number, if properly stimulated, are available for service.

Nurses are needed at several levels of skill. Those involved in this plan would have a high degree of both professional and academic training.

They would serve under the direction of a physician or a clinic to make house calls, conduct routine examinations, prescribe remedies for minor ailments, change dressings, supervise other nurses and so forth. They would be knowledgeable enough to know when

their knowledge was insufficient and a physician should be called. They would save their doctor much of the routine work that now consumes his valuable time and allow him not only to supervise the treatment of more patients but also to concentrate on the difficult cases.

Such a doctor-nurse system would be particularly helpful in rural communities and small towns where the physician has an enormous load in terms of geography alone.

Somewhat similar plans have been tried in some places successfully. Where public health nursing has been used extensively, it is a second cousin of this plan. The program, however, would and should operate as a private service.

If Kansas were to adopt this program, it would require the vigorous cooperation of the medical societies, the medical schools and the nurse training institutions.

It would be far better to augment the services of our physicians than to water down their standards.—*Salina Journal*, April 15, 1966.

A MODEST COST

Ask the next man you meet what he thinks about the cost of medical care and, you're apt to get this answer: "It's too high."

That, of course, is only human nature speaking. No one likes to go to the doctor or the hospital, and no one likes to pay the bills.

But, all this being true, it is a fact that the costs of medical care are nowhere near as great a financial burden as many believe. They have risen over the years just as have the costs connected with practically everything else. We get more and better medical care

(Continued on page 347)



Along The BOOKSHELF

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Clendening Medical Library

(Continued on page 347)



THERAPEUTIC RADIOLOGY—RATIONALE, TECHNIQUE, RESULTS, by William T. Moss. Second Edition, C. V. Mosby Company, St. Louis, 1965. 514 pages illustrated. \$18.75.

Soon after its appearance in 1959, the first edition of this excellent book became the fundamental teaching text in radiation therapy departments throughout this country. The second edition, completely revised and extensively rewritten to take account of advances in knowledge and radiotherapeutic technique, will secure the author's place in the hearts and minds of yet another generation of radiology residents.

The value of this text lies in the fact that Dr. Moss is able to present fundamental concepts in clinical radiation biology, principles of clinical radiotherapy, and a penetrating analysis of techniques and results in a completely logical, lucid, and easy-reading manner. The book is virtually free from the technical jargon which faults many expositions in this specialty. Any medical reader who wishes to gain a solid understanding of modern cancer therapy will find this presentation essential.

The format of the first edition has been retained. An introduction to the specialty of radiotherapy and an assessment of the current role of this important area of medical practice focuses attention on the relationships between the several physicians who play significant roles in the management of patients with cancer—the internist or generalist, the surgeon, the chemotherapist, and the radiologist. The author points out that radiotherapy has reached sufficient maturity to require the conscientious radiologist to select his patients for treatment—either palliative or radical—with the same care as does the surgeon. There is no longer any excuse for radiation treatment on psychological grounds alone or because nothing else can be

done for the patient. This is poor psychotherapy and brings good radiotherapy into disrepute.

The remainder of the book is organized by body regions or systems. Each section begins with a concise account detailing the response to radiation of the organs under consideration. This is followed in sequence by a clinically-oriented description of the important neoplasms or diseases which affect the region and an exploration of the best available methods for treatment. Dr. Moss's background in surgery lends particular competence to his discussion of the pros and cons of surgery versus irradiation where these are competitive modalities and his conclusions will find wide agreement among both surgeons and radiologists. Especially noteworthy are his analyses of preoperative radiotherapy and the place of radiotherapy-chemotherapy combinations. A survey of modern radiation therapy techniques, emphasizing the role of newer tools such as Cobalt 60 beams, as they apply to the system under scrutiny is followed by a critical review of results obtained in the author's broad experience and gleaned from the world literature. To each chapter is appended a carefully selected and up-to-date bibliography.

Dr. Moss has by design avoided writing a recipe book for radiation therapy. Therapeutic radiologists, like every other physician, develop their own particular techniques in conformity with certain basic principles. What Dr. Moss has done is put these principles in clear perspective understandable to any physician. As one of his early residents in radiation therapy, this reviewer notes how well this book reflects the author's devotion to teaching a rational and humane approach to the care of cancer patients.

The volume is well indexed, attractively produced with excellent illustrations, and sturdily bound. Its modest price and compactness will, I hope, assure it the wide audience its deserves.—*J.W.T.*

PEDIATRIC ELECTROCARDIOGRAPHY, by Warren G. Gunteroth. W. B. Saunders Company, Philadelphia, 1965. 150 pages illustrated. \$7.

In the preface, the author of this monogram states he will give a brief, but accurate, introduction to pediatric electrocardiography. The chapters are in good sequence. The early chapters deal with the theory of both scalar and vector electrocardiography. The concepts are a good review for those who earlier learned the material and should be adequate for the learning student.

The discussion is detailed with reference to the normal electrocardiogram. Age differences are discussed and the variations of normality from age to age are well outlined. Later, the patterns of pathological cardiac conditions are discussed. The average clinical pediatrician may question the value of the vector cardiography discussion, but it does help one's understanding of scalar leads.

For the clinical practicing pediatrician, unless he subspecializes in cardiology, this book will be a reference. The volume of cardiac patients is so low, and the generalizations which can accurately be made are so few that the average pediatrician must go with book in hand to accurately interpret anything beyond what appears grossly normal. Because the loose supplement is small, it helps overcome the embarrassment of needing a "crib sheet" to be reasonably accurate in reading electrocardiograms.—*R.D.P.*

MANAGEMENT OF JUVENILE DIABETES MELLITUS, by Howard S. Traisman and Alvah L. Newcomb. C. V. Mosby Company, St. Louis, 1965. 147 pages illustrated. \$12.75.

This is a review of current thinking on the etiology of diabetes mellitus. It has a very good chapter on the differential diagnosis of juvenile diabetes mellitus, but also deals somewhat with the mature type.

Its greatest contribution is in giving a very detailed discussion as to the immediate treatment of diabetes acidosis, then a six hour management. It discusses the various insulins and their effectiveness, along with instructions to be given to both patients and parents.

The latter chapters deal with diabetes mellitus in infancy and its prognosis and the problems with pregnancy and the incidence of the diabetic mother.

This book could be a help to both the internist and the pediatrician in caring for his diabetic patient, and an excellent review for anyone called upon for the infrequent treatment of this difficulty.—*C.A.N.*

Kansas Press

(Continued from page 344)

now than ever before. And no one can accurately measure the financial value of a longer and happier and more useful life.

In any event, some figures recently released by the Department of Commerce should come as a revelation to those who protest medical costs. In a late year, it seems, Americans spent more on products—\$7.8 billion—than on hospital care—\$7.6 billion. And they spend more on such personal care items as cosmetics, haircuts, and toiletries than on doctor's bills. Expenditures for the personal care items totaled \$7 billion—those for the physicians' services \$6.8 billion.

It's all a matter of relative values. Judged by that test, the cost of medical care, in all its ramifications, is modest indeed.—*Pratt Daily Tribune*, April 23, 1966.

Bookshelf

(Continued from page 345)

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KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in February, 1966 and 1965

<i>Diseases</i>	<i>February</i>			<i>January to February Inclusive</i>		
	<i>1966</i>	<i>1965</i>	<i>5-Year Median 1962-1966</i>	<i>1966</i>	<i>1965</i>	<i>5-Year Median 1962-1966</i>
Amebiasis	—	—	—	1	—	1
Aseptic meningitis	—	1	—	—	3	1
Brucellosis	1	—	—	1	—	1
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infectious	—	2	2	—	5	4
Encephalitis, post-infectious ..	—	2	*	—	3	*
Gonorrhea	214	130	182	485	386	459
Hepatitis, infectious	18	58	53	39	113	113
Meningococcal meningitis	3	2	2	4	4	4
Pertussis	—	—	—	1	4	2
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	1	1	—	1	1
Salmonellosis	17	9	9	24	33	24
Scarlet fever	23	19	23	33	36	36
Shigellosis	3	9	3	20	14	14
Streptococcal infections	344	625	344	556	1006	542
Syphilis	91	100	85	179	173	173
Tinea capitis	6	2	6	10	9	14
Tuberculosis	29	12	17	42	34	42
Tularemia	—	—	—	—	1	1
Typhoid fever	1	—	—	1	—	—

* Statistics on 5-year median not available.

THE CHILD CENTERED PROGRAM TO PREVENT TUBERCULOSIS IN KANSAS

1. All tuberculin negative children should be retested periodically. The minimum advised by the USPHS (Task Force Report) is as follows:
 - a. First tuberculin test between the age of six months and six years with findings recorded and available on all children entering school.
 - b. Second tuberculin test during adolescence—age 14 is recommended.
2. Whenever a child seven years of age or younger has a reaction of 10 mm. induration or more on the standard 5 TU Mantoux test (or confluent reaction on multiple puncture), health department officials should be informed and epidemiological studies initiated.
3. INH prophylaxis is recommended for children (preschool and adolescents) if the Mantoux test reveals an induration of 15 mm. or more; if recent exposure to an infectious case occurred; or if

the acquisition of infection is recent (within two years) as documented by conversion of tuberculin test.

4. Tuberculin testing is urged as a companion part of the immunization program for children and entries for both should be kept up-to-date on the individual immunization record available from the Kansas State Department of Health.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

James B. Barker, M.D.
7501 Mission Road
Shawnee Mission, Kansas

Ivan H. Carper, M.D.
City General Hospital
Kansas City, Missouri

Paul F. Bonnici, M.D.
Osawatomie State Hospital
Osawatomie, Kansas

Eugene C. McCormick,
M.D.
P.O. Box 68
Conway Springs, Kansas



PHYLLIS OGG BOONE, M.D.

Dr. Phyllis Ogg Boone died at her home in Leavenworth on February 26, 1966. She was 41 years old.

Dr. Boone was born at Osborn, Kansas, on August 1, 1924. She attended schools in Wichita, and was graduated from the University of Kansas School of Medicine in 1949. She began her medical practice in Kansas City, later returning to the medical school to specialize in anesthesiology. For the past several years Dr. Boone had been practicing in Leavenworth.

Survivors include her husband and two sisters.

DELLETT E. BRONSON, M.D.

Dr. D. E. Bronson, 91, a long-time Olathe physician, died at the Methodist Home in Topeka on April 29, 1966.

Dr. Bronson was born February 19, 1875, at French Creek, West Virginia. After graduating from medical school in 1906 he came to Olathe where he continued his medical practice until his retirement in 1964. He had served on the board of directors of Kansas Tuberculosis and Health Association, as coroner of Johnson County, and as physician for the Kansas School for the Deaf in Olathe.

He is survived by his daughter and granddaughter.

JOHN F. HEAD, M.D.

Dr. John F. Head, Topeka, died in a Topeka hospital on May 4, 1966, at the age of 48.

Dr. Head was born May 17, 1917, in St. Paul, Minnesota. He was graduated from the St. Louis University School of Medicine in 1943. After serving in the U. S. Navy, he returned to DePaul hospital in St. Louis for a two-year residency. He came to Topeka from Oklahoma in 1952, after completing a fellowship at the University of Oklahoma, studying electrocardiography and cardiovascular diseases. Specializing in internal medicine, he was a consultant for the Kansas Rehabilitation Center for the Blind, and had served on the staff at Forbes Air Force Base hospital and the Kansas Neurological Institute.

Surviving him are his wife, four sons and two daughters.

The Kansas Medical Society—1966-1967

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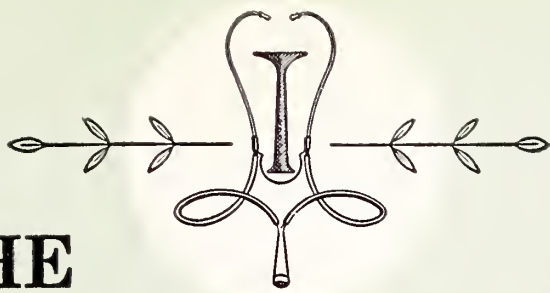
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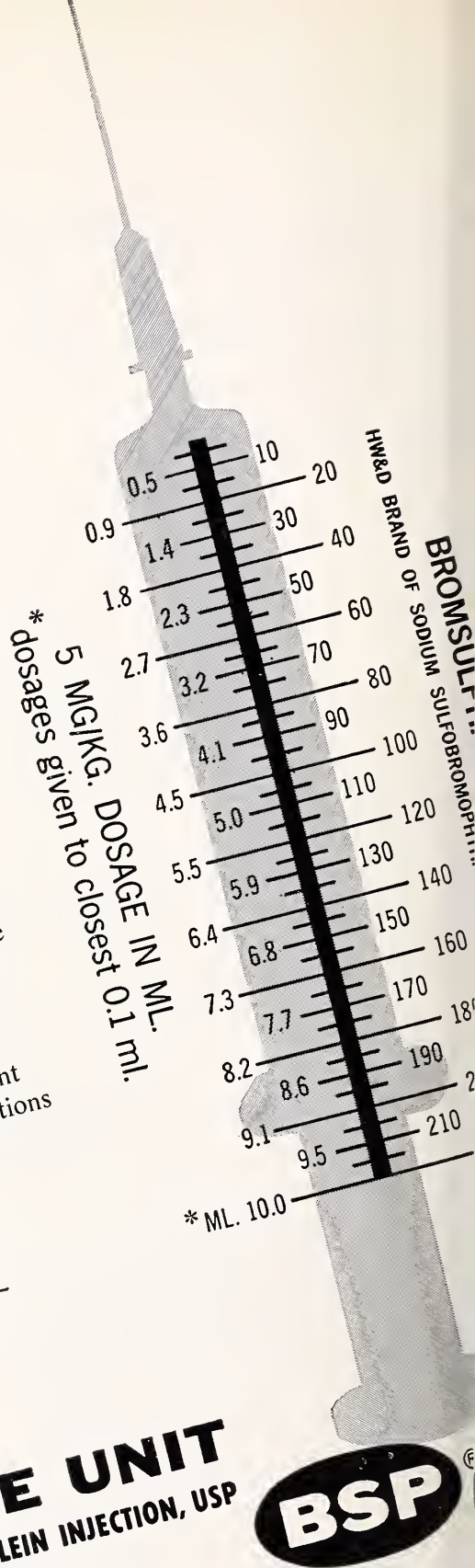
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The Fractured Elbow

Supracondylar Fractures of the Humerus in Children

HENRY O. MARSH, M.D.,* *Wichita, and*
LUIS NAVARRO, M.D., *Guadalajara, Mexico*

IN CHILDREN, a supracondylar fracture of the humerus is one of the most difficult fractures to treat. There are three general methods of treatment: immobilization in flexion, traction, and surgery. Each method has staunch advocates; no one method has established clear superiority. Controversy over results and complications led to this study of results achieved by closed reduction and tape immobilization. All were transverse supracondylar fractures. Fractures of the medial epicondyle, dicondylar Y or T fractures, and fractures of one condyle are not included.

In the past, each study of supracondylar fracture of the humerus has seemed to prove that the method being presented produced fewer complications and better results than any other method, and was, therefore, the only way to treat such a fracture. We contend that no one method of treatment is ideal, and although excellent results can be obtained with tape immobilization, other methods of treatment are at times essential. Each fracture must be assessed individually without rigid preconceived ideas regarding an "only treatment."

Between 1948 and 1964, 136 children were treat-

ed for supracondylar fractures. A letter was sent to each patient; 63 returned for reexamination. One child had bilateral fractures. Thirty-three were males; 30 were females. The highest incidence occurred in the six- to eight-year age group. Thirty-seven occurred in

We have reviewed 63 supracondylar fractures of the humerus; 47 were displaced, and of these, 20 Type IV fractures were treated by closed reduction and tape immobilization. The results obtained by this ambulatory method were equal to that of other more cumbersome or involved methods. Skeletal traction or Dunlop traction which requires hospitalization should be reserved for complicated cases. No serious complications were experienced.

the left elbow and 26 in the right. There were 16 undisplaced fractures. In the 47 displaced fractures, the extension type was present in 46 and the flexion type in one (*Figure 1*). The extension type fracture constitutes 99 per cent of these injuries. In these, the fracture line extends upward and backward on

* Read before the Section on Orthopedic and Traumatic Surgery, Southern Medical Association, Fifty-Ninth Annual Meeting, Houston, Texas, November 1-4, 1965.

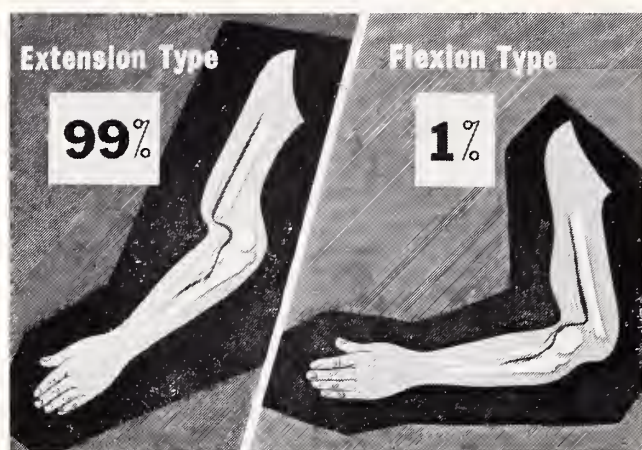


Figure 1

the humerus, and the distal fragment is displaced posteriorly. In the flexion type of fracture, the distal fragment is displaced anteriorly.

We believe that the following criteria must be satisfied before a regimen of treatment can be recommended for use in these fractures: The treatment must be safe, it must produce results at least equal to other methods, it must not require long hospitalization, and it must be usable in general hands. Closed reduction and tape immobilization in flexion satisfies these criteria for the uncomplicated displaced supracondylar fracture.

Plan of Treatment

The fractures were treated in the following fashion: General anesthesia was used, and manual traction was applied to disengage the fragments and overcome the shortening. Digital pressure was applied to the posterior surface of the condyles, forcing this fragment forward on the end of the shaft. Angulation or displacement was controlled by lateral finger pressure, and the fragment was adjusted into proper alignment. The elbow was then flexed approximately 45° above the right angle and was taped in this position. Only semicircular spiral bands of tape were

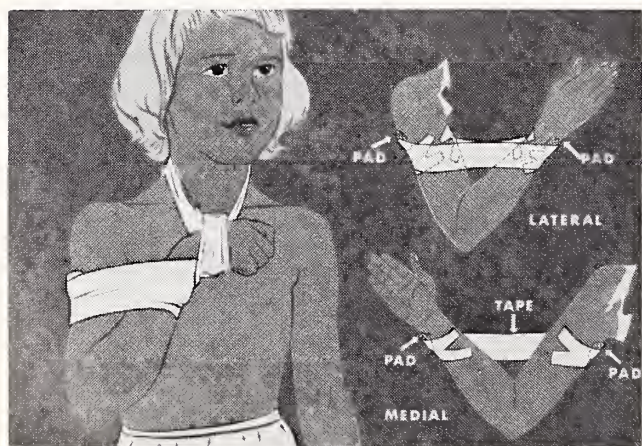


Figure 2

applied to the arm or forearm, thus avoiding constriction and circulatory embarrassment (Figure 2).

Most fractures were stable after reduction as the triceps tendon snubs around the condyles locking the fragments in position. Following reduction, a child was hospitalized 24 to 48 hours for observation, as severe swelling was the constant companion of such a fracture.

Two or three weeks later, the tape was changed and the elbow flexion decreased to 90° (right angle) and maintained at this angle for an additional two weeks. All support was then discarded, and free use of the extremity was permitted. Elbow motion was quickly regained.

The goal of reduction should be repositioning of fragments as anatomically as possible without causing undue trauma by repeated manipulations. Attenborough reported four completely displaced fractures which could not be reduced by closed manipulation. The displacement was accepted, and all fractures healed with rapid remodeling of the bone and a re-

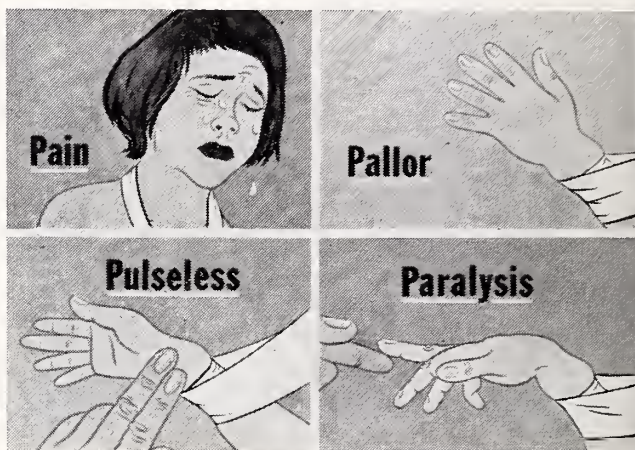


Figure 3

turn to almost normal anatomy and what he termed "good function." Fortified with this knowledge, it would appear more reasonable to accept a reduction that was not anatomical than to traumatize the patient by repeated and increasingly desperate manipulations or surgery. However, angulation of the distal fragment, if uncorrected, will result in a cubitus varus or valgus deformity (L. Smith).

A pulseless wrist prior to manipulation did not signal that a Volkmann's ischemic contracture was imminent. This demanded, as with all supracondylar fractures, careful clinical evaluation, remembering the four P's—pain, pallor, pulselessness, and paralysis—(Figure 3) and of these, the most important is pain. Children should be comfortable after reduction, requiring only ice bags and aspirin for relief. Treatment with vasodilator drugs, stellate block, or surgery was not indicated when the hand remained pink and warm and had good capillary circulation (Blount).

Loss of the radial pulse during manipulation indicated the presence of circulatory embarrassment. Decreasing the elbow flexion to 30° above a right angle or to a right angle usually restored the pulse and sacrificed reduction. Position could usually be regained after allowing a few days for the swelling to decrease and then re-manipulating the fracture or placing the elbow in traction.

Tape immobilization was not used for all displaced fractures. We do not regard this method as the only solution to the problem. We disagree with Watson-Jones who stated that these fractures can always be reduced without resorting to skeletal traction. Traction was used in nine cases because of severe swelling, instability of the fracture on attempted closed reduction, or multiple fractures, or because of previous surgery or absence of the radial pulse. Traction requiring hospitalization was effective and comfortable but was expensive and physically burdensome. The patient was confined for two or three weeks, and usually one parent remained in attendance at or near the hospital.

The two open reductions in this series had unsatisfactory results—poor cosmetic appearance, a disturbing change in the carrying angle, and a significant loss of motion. Emergency surgery may be required for neurovascular complications, and internal fixation may be necessary. Surgery should be reserved for these problems.

Results of Rx

In order to evaluate the results, these fractures were classified into four types according to the degree of displacement on x-ray, as suggested by Holmberg:

Type I—Fractures without displacement

Type II—Fractures with lateral displacement

Type III—Fractures with rotation with or without lateral displacement

Type IV—Fractures with complete displacement

According to this classification (*Table 1*) there

were 16 fractures of Types I and II. These were treated by splinting or taping without reduction, and all children except one had a normal elbow. This child with 35° of posterior angulation was splinted, and two years later a 15° loss of flexion remained. This indicated that reduction of minor deformities can be important and should not be lightly dismissed.

There were ten fractures of Type III and 37 of Type IV. All Type III and Type IV injuries, regardless of the method of treatment, regained functional elbows. This was true even when changes in the carrying angle or loss of motion occurred. The most marked residual deformity occurred in an elbow treated by open reduction. This child had 30° of cubitus varus and a range of motion from 45° of flexion to 110° of flexion (65° of motion).

Twenty of the Type IV fractures were treated by closed reduction and tape immobilization.

The crucial issue in any study of this fracture are the results obtained with the treatment of the Type IV fracture. Our results were classified according to Holmberg's criteria:

Ideal: No complaint, less than 10° loss of flexion and extension, and 5° or less loss of carrying angle

Good: Limitation of flexion-extension amounting to 10° to 20° or a change in the carrying angle of between 5° and 15°

Not Satisfactory: Elbows with greater changes

The results obtained according to these standards compare favorably with the results obtained by surgery (*Table 2*) (Holmberg), ambulatory skeletal traction (Høyer), and Dunlop traction (Mitchell).

We obtained the results shown in *Table 2* in the 20 Type IV fractures treated by closed reduction and tape immobilization.

Reasons for Unsatisfactory Results

There were three children with a change in the carrying angle which was alone sufficient to prevent

TABLE 1
FINAL RESULTS ALL FRACTURES

Type	Treatment	Ideal	Good	Not Satis.	Total
I.	Tape or splint	8	1	0	9
II.	Tape or splint	7	0	0	7
III.	Traction	0	1	0	1
	Cast	3	1	0	4
	Tape	3	2	0	5
IV.	Traction	4	2	2	9
	Cast	3	2	2	6
	Tape	16	3	1	20
	Open reduction . . .	0	0	2	2
	Total	45	11	7	63

TABLE 2
COMPARATIVE RESULTS
TYPE IV FRACTURES

	No. Cases	Ideal	Good	Un-satis.	Per Cent Satis.
Open reduction (Holmberg) . . .	50	28	14	8	84
Skeletal traction (Hoyer)	26	14	10	2	92
Dunlop traction (Mitchell)	16	16	1	0	99
Manipulation and tape	20	16	3	1	95

classifying their results as ideal (Table 3). The average change was 12°. A change in the carrying angle does not disappear with growth, and once present as a result of incomplete reduction of the angulation, is permanent. This distressing cosmetic deformity was the common denominator of all methods of treatment. The incidence varies in different series from nine per cent to 57 per cent, according to Høyer.

TABLE 3				
RESULTS WITH TYPE IV FRACTURES TAPE IMMOBILIZATION				
	Varus or Valgus Deformity	Loss of Flexion	Loss of Extension	Final Evaluation
16 Cases	Less than 5° change	Less than total 10° change		Ideal
		5°	10°	Good
3 Cases	10° valgus			Good
	10° varus	10°		Good
1 Case	15° varus		45°	Not Satisfactory

Cubitus valgus was not a clinical problem, and parents do not seem to notice this deformity. Tardy ulnar nerve paralysis did not occur.

In three children, the range of motion was altered enough to classify the result as good or not satisfactory. Limitation of extension was seen in two with an average loss of 27°. Flexion was decreased in two with an average loss of 7°, one child having limitation of both flexion and extension. This loss of motion did not prevent good elbow function or generate the parental dissatisfaction produced by a gunstock deformity.

Epiphyseal growth was not disturbed by tape immobilization; this disaster occurred in one child treated by surgery.

Temporary loss of radial pulse was the only vascular problem and was restored in each instance by decreasing elbow flexion.

Radial nerve function was temporarily lost in three cases, and full recovery occurred without treatment within three to sixteen weeks. It has been generally recommended that the nerve be left undisturbed unless there are associated vascular complications. Temporary ulnar nerve paresis occurred in two children.

Conclusions

1. The uncomplicated completely displaced Type IV supracondylar fracture can be safely and adequately treated by tape immobilization. Each fracture

must be evaluated individually, as no single method of treatment is ideal.

2. Careful pre- and post-reduction circulatory and neurological examinations are obligatory. Omission of this aspect of treatment is an open invitation to clinical and legal disaster.

3. Cubitus varus or gunstock deformity is the common demoninator of failure in all treatment methods and results from medial angulation of the distal fragment.

4. Skeletal or Dunlop traction should be used with: (a) neurovascular injuries; (b) compound fractures; (3) circulation jeopardized by swelling; (d) multiple fractures; and (e) unstable fractures.

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Splenic Cysts

Benign Nonparasitic Cyst of the Spleen

JACK A. WORTMAN, M.D.,* and
ROBERT P. NORRIS, M.D.,** *Wichita*

BENIGN NONPARASITIC CYSTS of the spleen, though a rare cause of splenic enlargement, present a rather characteristic clinical and laboratory picture which, if recognized, assists the clinician in ruling out disorders of grave consequence such as lymphoma or leukemia.

Nearly 400 cases of nonparasitic splenic cyst have been reported in the literature since the original description of the entity in autopsy material by Andral in 1829.¹ In some 800 splenectomies at the Mayo Clinic between 1904 and 1940 only four cysts were discovered.² Deneen³ found eight cases at Bellevue Hospital in a 38 year period, attesting the rarity of the disorder.

The following exemplifies many of the typical signs and symptoms of splenic cyst and serves as a point of departure for a brief review of this interesting entity.

Case Report

A 17-year-old white, single female was referred with a history of intermittent sharp, stabbing left upper quadrant pain of two months' duration. For about six months she had tired easily and had noted that she filled up quickly at meals.

Past and family histories were unremarkable.

Review of systems revealed that the patient's menses had been several days longer than usual in recent months. Only after repeated inquiry by several examiners did she recall having been in an auto accident one year previously with blunt trauma to the upper abdomen.

Physical examination: BP 120/80, Pulse 74, Respirations 16. The patient was well developed and nourished, but somewhat pale. Positive physical findings were limited to the chest and abdomen: the left lower chest was dull to percussion with diminished breath sounds below the fifth interspace. The left upper quadrant of the abdomen was occupied by a rounded, smooth, firm, non-tender mass which descended slightly with inspiration. No notch was palpable. At the superomedial and inferolateral aspects of the mass were discrete areas about 4 cm. in diameter which were tender to palpation, and over which a friction rub was audible during inspiration.

The mass in the left upper abdomen extended three centimeters past the midline into the right epigastrium, and extended inferiorly to the level of the umbilicus. The liver was just palpable at the right costal margin. No peripheral lymphadenopathy was present.

A case of benign nonparasitic cyst of the spleen has been presented and the characteristic clinical and radiographic findings described.

The treatment of this disorder is splenectomy which is curative.

Laboratory values were, wbc 5,700, segs 52, bands 4, lym 42, Hb 8.9, Hct 33, BUN 10 mg. per cent, and Protein 6.5 gm. per cent. Chest films revealed elevation of the left diaphragm (*Figure 1*). IVP was



Figure 1. Admission chest x-ray showing elevation of left diaphragm.

* Resident in Internal Medicine, St. Francis Hospital, Wichita.

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Figure 2. IVP—Note huge LUQ mass with normal position of left kidney.



Figure 3. UGI demonstrating displacement of the stomach to the right.

normal (Figure 2). UGI showed displacement of the stomach to the right, inferiorly and anteriorly (Figure 3).

On the third hospital day exploratory laparotomy revealed a huge spleen filling the left upper quadrant of the abdomen. A 10 x 12 cm. white, thickened area was present on the anterior surface of the spleen with subjacent fluctuance. Aspiration of the organ yielded two liters of brownish, cloudy fluid. Splenectomy was performed. Subsequent abdominal exploration revealed an early hydrops of the gall bladder with a single stone impacted in the cystic duct. Cholecystectomy was carried out.

The remaining abdominal viscera were normal. Except for a temperature elevation on the first two post-operative days the patient's course was uneventful.

Pathologic Examination

The excised spleen was 26 x 21 x 14 cm. in greatest diameter with a cyst wall 0.7 cm. in thickness (Figure 4).

Microscopically the cyst wall was found to have no epithelial lining and was composed of fibrous and hyaline material containing occasional lipid filled macrophages. Irregular, patchy fibrosis of the splenic capsule was present as was mild congestion of the splenic pulp (Figure 5).

The presence of a gallstone in this 17-year-old, asymptomatic girl is of interest; however, no associ-

ation between splenic cyst and cholelithiasis has been noted by previous authors, nor is it suggested here.

Discussion

An excellent and comprehensive review of cysts of the spleen is that by Fowler.⁴ His classification of these cysts is most widely used and is presented in Table 1.

The most common location for such cysts is at the lower pole of the spleen where 26 per cent occur. About 18 per cent are found on the convex and concave surfaces, respectively, while 14 per cent are found near the hilum. Only nine per cent are in the superior pole.⁵

Although nonparasitic splenic cysts are found in patients of all ages, some 75 per cent occur in patients below age 50. They are slightly more common in females than in males.⁶

A variety of etiologic and contributing factors has been suggested in the pathogenesis of splenic cysts including trauma, subcapsular hemorrhage, splenic infarction and congestion of the spleen related to menstruation or pregnancy. An attempt by Martin *et al.*⁷ to produce cysts by interference with splenic blood supply was unsuccessful. Certain infectious processes, particularly malaria and tuberculosis are known to be associated with an increased incidence of cyst formation. However, the most uniformly accepted and documented contributing factor is upper



Figure 4. Gross surgical specimen after aspiration of cyst.



Figure 5. Photomicrograph of cyst wall. No cellular lining is present.

Physical examination reveals a smooth, usually non-tender, firm mass, often remarkably large, occupying the left upper quadrant of the abdomen. The mass descends with inspiration, but a splenic notch is often not palpable which adds to the difficulty of

abdominal trauma. In a group of 64 cases collected from the literature by Fowler⁴ a definite history of trauma could be obtained in 14. One of these patients had a splenic vein thrombosis and four of the cysts had formed in areas of splenic hemorrhage. An accurate history is often difficult to obtain since the traumatic episode is often remote or even completely forgotten. Only after repeated questioning by several examiners did the patient here presented remember her injury.

The symptomatology of a splenic cyst is primarily related to its action as a space occupying mass. Displacement of, or pressure upon, the stomach, diaphragm or colon accounts for the majority of complaints. Small cysts are, accordingly, often symptom free. Pain is the most common presenting complaint. It is often sharp and stabbing in character, intermittent, located in the left upper quadrant of the abdomen, and not infrequently radiates to the left shoulder. Fullness in the left upper quadrant, awareness of an abdominal mass, and early satiety at meals are frequent complaints, as are dyspnea on exertion, low grade fever and ease of fatigability. Pressure of the mass on the colon may produce constipation or diarrhea.

TABLE 1

CLASSIFICATION: BENIGN NONPARASITIC
CYSTS OF THE SPLEEN. (Fowler)

- | |
|------------------------------------|
| I. Primary (with cellular lining) |
| 1. Congenital |
| 2. Traumatic |
| 3. Inflammatory |
| a. Infestation cysts |
| b. Dilatation cysts |
| 1) Lymphangiectatic |
| 2) Polycystic disease |
| 4. Neoplastic |
| a. Epidermoid |
| b. Dermoid |
| c. Lymphangioma |
| d. Hemangioma |
| II. Secondary (no cellular lining) |
| 1. Traumatic |
| a. Hemorrhagic |
| b. Serous |
| 2. Degenerative |
| 3. Inflammatory |
| a. Necrosis |
| b. Tuberculosis |

identifying the structure as spleen. Peripheral lymphadenopathy is notably absent.

The differential diagnosis of such a mass must include lymphoma, leukemia or other blood dyscrasia, cysts involving the mesentery, omentum, pancreas or liver and neoplasm of the kidney or liver.

Routine blood and urine studies are of little benefit, but radiographic studies prove extremely helpful. Chest x-ray often shows mild to moderate elevation of the left diaphragm. This is occasionally sufficiently severe to result in atelectasis or pneumonitis of the left lower lobe. Barium studies frequently reveal displacement of the stomach to the right, anteriorly and inferiorly with depression of the distal transverse colon and splenic flexure. The intravenous pyelogram most often demonstrates little or no alteration in the position of the left kidney, though mild depression of the left kidney may occasionally be seen. Rarely pressure on the left ureter produces dilatation of the renal pelvis. The presence of calcium in the splenic area may be of help in suggesting a cyst, although sclerosis or aneurysm of the splenic artery gives a similar picture.

Schechter¹ and his colleagues believe the radiographic triad of normal IVP, inferior displacement of the splenic flexure of the colon, and anterior and rightward displacement of the stomach to be almost pathognomonic of cyst of the spleen.

Complications resulting from benign nonparasitic splenic cysts are unusual. Prostration secondary to

torsion of the splenic pedicle, and rupture of a cyst into the left pleural cavity have been recorded.

The treatment of choice for splenic cyst is splenectomy. Incision and drainage and marsupialization have been employed in the past and found to be unsatisfactory. Waugh⁶ and his colleagues have pointed out that the technique of marsupialization may be accompanied by fistula formation, amyloid disease or both.

The mortality attending splenectomy for this condition varies according to the nature of the cyst and the presence of concomitant disease, but is generally quite low. Over-all mortality in a series of 110 cases collected by Fowler was four per cent; however, in elective procedures the mortality is essentially that of routine laparotomy.

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Bacillary Dysentery

An Institutional Outbreak of Shigella Sonnei: Treatment of 36 Cases With Nalidixic Acid

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ORGANISMS OF THE GENUS *Shigella* are the commonest causes of bacillary dysentery in man. The strain most frequently encountered in the United States is *Shigella sonnei*. Unlike the virulent strain of *Shigella dysenteriae*, which is rarely found in this country, but responsible for many clinical cases with high mortality in India, Japan and elsewhere, the *sonnei* strain causes symptoms which are relatively mild and are almost always confined to the gastrointestinal tract. This gram-negative organism is responsible for mild dysentery in adults and gastroenteritis in infants and children. Diarrhea is the prime symptom of the infection, often accompanied by fever. Prostration and dehydration may also result.

Like other gram-negative bacteria, the *Shigella* strains readily develop organisms resistant to drugs.

Improved sanitation has made epidemics rare. However, outbreaks of *Shigella sonnei* infection do occur, and in institutions such as hospitals, nursing homes, orphanages and military establishments, they may reach epidemic proportions. Although contamination of food and water by flies, low standards of sanitation and poor personal hygiene seem to be factors in the transmission of the infection, epidemics which occur in institutions can often be traced to contamination of the food supply by a carrier, perhaps a member of the kitchen staff.

Because this infection is spread by direct contact by way of the oral route and because there may be convalescent carriers, infection in population of institutionalized patients tends to be troublesome and persistent.

Shigella sonnei is characteristically difficult to eradicate in children who live in an institution for the mentally retarded. Residence in the institution combined with greater than normal susceptibility, which is partly the result of poor immunological response to infection, make such children likely candidates. During an outbreak of gastrointestinal infection, 36 children in such an institution were given nalidixic acid* for treatment of recurrent or acute *Shigella sonnei* infection.

Background of Medication

Nalidixic acid, an orally-active naphthyridine, effective

against gram-negative organisms, was synthesized at the Sterling-Winthrop Research Institute in 1958.¹

The drug has been used successfully against many kinds of gram-negative bacterial infections, especially those of the genitourinary and gastrointestinal tracts.²⁻⁵ Because no cross-resistance has been observed, nalidixic acid is particularly useful in the treatment of infections caused by organisms which have become resistant to other antibacterial drugs.⁷

Extensive laboratory tests have shown that the drug is rapidly absorbed from the gastrointestinal

A series of 36 cases of chronic and acute *Shigella sonnei* infection was treated with nalidixic acid. Laboratory and clinical examinations, as well as follow-up examinations, showed that the pathogenic organisms had been eradicated, even in those patients who had failed to respond to other medication during previous episodes of infection.

tract and rapidly excreted from the kidney.^{1, 2} Its low toxicity has been demonstrated in clinical and laboratory tests in animals and in man.^{1, 8} Gluck and co-workers have shown that it is safe and effective when used in the treatment of gram-negative bacterial infections of infancy and childhood.^{6, 10}

The Present Study

Thirty-six institutionalized mentally retarded children between the ages of four and 16 years were treated for *Shigella sonnei*. In each case, the diagnosis was confirmed by culture of materials obtained from anal swabs. Detailed medical history revealed that 21 of the patients in this series had suffered previous episodes of this infection within the year. They had been treated with one or more of the drugs commonly used against this type of infection (Table 1). The remaining 15 cases were apparently acute, without recent history of gastrointestinal infection.

During the outbreak under consideration, all 36 patients received nalidixic acid for the first time. For six days, a daily dosage of 500 mg. was administered in two divided doses.

* Nalidixic acid is marketed as NegGram by Winthrop Laboratories, New York, New York.

TABLE 1
DRUGS USED IN PREVIOUS EPISODES OF
SHIGELLA SONNEI INFECTION

Drug	Number of Patients Treated
Tetracycline	12
Furoxone	12
Albamycin	4
Chloromycetin	2
Humantin	1
Neomycin	1
Declomycin	1
Sulfadiazine	1

Severity of the infection ranged from asymptomatic cases in which infection was discovered as a result of routine examination, to acute gastrointestinal disturbance with diarrhea (sometimes accompanied by discharge of bloody mucus), fever, abdominal discomfort, dehydration and prostration.

Relief of symptoms was promptly obtained with medication, usually in two to three days. Subsequent and repeated bacteriological studies indicated that the organism had been eradicated in both the acute and the chronic cases. During an observation period which lasted from six to nine months, no recurrences were reported on 20 among the 36 cases.

Laboratory tests were performed to detect changes in blood and urine, both at the start of treatment and in follow-ups. All side effects were noted.

Discussion

In the course of treatment, the response of each patient to the medication was rated as excellent, good, moderate or poor (Table 2). Since remission of symptoms was obtained in all cases and since no recurrences were reported during the follow-up period, these in-treatment ratings simply indicate the promptness with which symptomatic relief was obtained.

Among the 21 chronic cases, five cases (23 per cent) had excellent results and 14 cases (66 per cent) had good results, making a total of 89 per cent of good-to-excellent results in the chronically infected group. Of the 15 acute cases, excellent results were obtained in 26 per cent and good results in an additional 60 per cent. The percentage of good-to-excellent results in the entire series was 87. Of the remaining four patients, three obtained moderately good results and one patient, who had a poor response, was found to have a drug-resistant organism.

Side effects were observed in 13 patients. These included nausea and vomiting, anorexia, minor and transient blood changes, and eosinophilia. In no case was it necessary to alter the dosage or interrupt therapy. Although central nervous system stimulation

TABLE 2
EFFECTIVENESS OF NALIDIXIC ACID IN
SHIGELLA SONNEI INFECTION

Number of Cases		
Chronic		21
Acute		15
Response to Treatment (per cent)		
	CHRONIC	ACUTE
Excellent	23	26
Good	66	60
Moderate	11	14

with the use of this drug has been reported,⁹ there were no seizures reported among patients in this series in spite of the fact that some of the patients are epileptic.

Summary and Conclusions

A series of 36 cases of chronic and acute *Shigella sonnei* infection was treated with nalidixic acid.

The dosage of 500 mg. per day was continued for six days.

Laboratory and clinical examinations as well as follow-up examinations showed that the pathogenic organisms had been eradicated, even in those patients who had failed to respond to other medication during previous episodes of infection.

Side effects were minor and transitory and did not alter the prescribed course of treatment.

The following conclusions may be drawn:

1. Nalidixic acid provides effective and well-tolerated treatment of acute *Shigella sonnei*.
2. Organisms which have become resistant to other drugs will respond to nalidixic acid.
3. The drug may be used effectively and safely for highly susceptible institutionalized mentally retarded patients without risk of side effects including central nervous system stimulation.

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(Continued on page 379)

Leukemia and Lymphoma

An Epidemiologic Study in Three Midwestern States, 1950-1959

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Introduction

FIGURES AVAILABLE in the *Vital Statistics of the United States* reveal an increase in the death rates for the lympho-hematopoietic neoplasms from 3.3 per 100,000 population in 1930 to 14.0 per 100,000 population in 1959. Three factors have been found to explain part of this increase. These are: (1) a change in the reporting system, (2) an increase in the proportion of older age groups in the population, and (3) improved diagnostic facilities. Most observers concede, however, that an actual increase has occurred.¹⁻¹³ This increase, plus the recent studies of "clusters" of leukemia,¹⁴⁻¹⁸ prompted us to conduct a detailed epidemiologic study of leukemia and lymphoma in a three-state area. We have previously completed a geographical study of leukemia and lymphoma in Kansas.¹⁹ The findings of that study warranted expansion to include two neighboring states, Missouri and Oklahoma, in order to encompass larger populations, larger number of cases, varying geography, and different racial backgrounds. The purpose of the study was to delineate regions of increased leu-

kemia and lymphoma death rates; and to determine the relationship of the increase to: urbanization, population size and age composition of the population.

Methods

Individual death certificates of Kansas, Missouri, and Oklahoma for the ten year period, 1950 through

A ten-year study of leukemia and related neoplasms in Kansas, Oklahoma, and Missouri was carried out, utilizing 10,247 cases as registered in death certificates for the years 1950 through 1959. Reported here are the results of this study.

1959, were examined. All certificates listing lympho-hematopoietic neoplasms as the primary, secondary or contributing cause of death were photocopied. The diseases listed in *Table 1* were considered to be part of these neoplasms. The inter-relationship of these neoplasms is generally accepted by most hematologists. For use in this study, the lympho-hematopoietic neoplasms were divided into the six categories shown in the listing. Although somewhat arbitrary, grouping was necessary—both for significant numbers and for comparison with figures from the *Vital Statistics of the United States*. A total of 10,247 death certificates of persons with lympho-hematopoietic neoplasms were included in this study. An IBM card was prepared from each certificate recording the name, age, sex, race, marital status, disease, place of death, place of usual residence, date of death, secondary diseases, length of illness and other miscellaneous information. Statistics used in this study were obtained from these IBM cards by use of a card sorter, IBM 650 computer, and map plots.

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This paper was presented before the Epidemiology Section of the American Public Health Association at the Ninety-First Annual Meeting in Kansas City, Missouri, November 12, 1963.

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TABLE 1
LYMPHO-HEMATOPOIETIC NEOPLASMS
USED IN STUDY

Lymphoma
Lymphatic lymphoma
Giant follicular lymphoma
Malignant undifferentiated lymphoma
Reticulum cell lymphoma
Hodgkin's
Hodgkin's lymphoma
Multiple myeloma
Multiple myeloma
Lymphatic leukemia
Chronic lymphatic leukemia
Myelogenous leukemia
Chronic myelogenous leukemia
Acute leukemia
Acute lymphatic leukemia
Acute myelogenous leukemia
Acute monocytic leukemia
Acute undifferentiated leukemia
Aleukemic leukemia
Acute leukemia (type unspecified)

Results

Comparison of leukemia and lymphoma death rates of Kansas, Missouri, Oklahoma, and the United States for each of the ten years is shown in *Table 2*. In all three states there had been an increase in death rates. The rates were similar to those of the United States, although the Kansas rates were somewhat higher than those of Missouri and Oklahoma. *Figure 1* shows a comparison of the age-specific death rates of all lympho-hematopoietic neoplasms for the three states and the United States. The pattern of the four curves is similar. After an initial drop, the incidence increased with age, and the rate of increase was almost identical.

TABLE 2
LEUKEMIA-LYMPHOMA DEATH RATES FOR
KANSAS, MISSOURI, OKLAHOMA AND
U. S. 1950-1959

Year	Death Rate/100,000			
	Kansas	Missouri	Oklahoma	U. S.
1950	9.9	10.6	8.7	10.7
1951	11.5	9.7	9.4	11.5
1952	11.8	8.1	10.6	11.7
1953	13.1	10.6	10.4	12.4
1954	12.8	11.2	11.9	12.3
1955	12.8	13.1	11.5	13.0
1956	12.6	11.3	11.8	13.5
1957	15.9	14.6	14.3	13.8
1958	14.7	15.1	13.1	13.9
1959	14.9	12.5	13.3	14.0

Figure 2 shows the age-specific death rates of individual types of leukemia and lymphoma for the three states. Except for the initial high level of the death rate for acute leukemia in young children, all the lympho-hematopoietic neoplasms show a similar pattern of low death rates in younger age groups and an increase after 40 years of age. The rate of increase was more abrupt in chronic leukemia and lymphoma, and somewhat less in acute leukemia. The rate of increase in Hodgkin's disease and multiple myeloma was considerably more gradual.

Previous studies have suggested a relationship between urbanization and incidence of leukemia. *Table 3* compares the death rate in urban and rural areas of

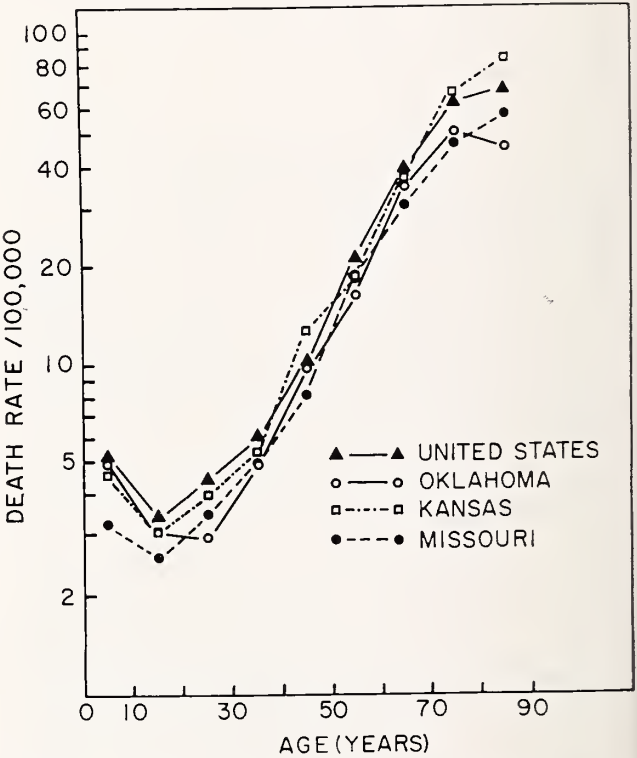


Figure 1. Death rate of lymphoma and leukemia by age group. Comparison of Kansas, Missouri, Oklahoma, and the United States.

Kansas, Missouri, and Oklahoma. In all three states the urban rate was significantly higher than the rural rate. The urban-rural difference was particularly great in Kansas. Comparison of urban-rural difference in death rates for each disease is shown in *Table 4*. The death rates were higher for urban areas in every instance. This difference was most notable in acute leukemia and lymphoma. The urban-rural differences in the rates for the other four diseases were smaller, but were statistically significant.

To determine the relationship between population size and death rates, the state populations were divided into five categories as shown in *Table 5*. The highest crude death rates occurred in small towns and

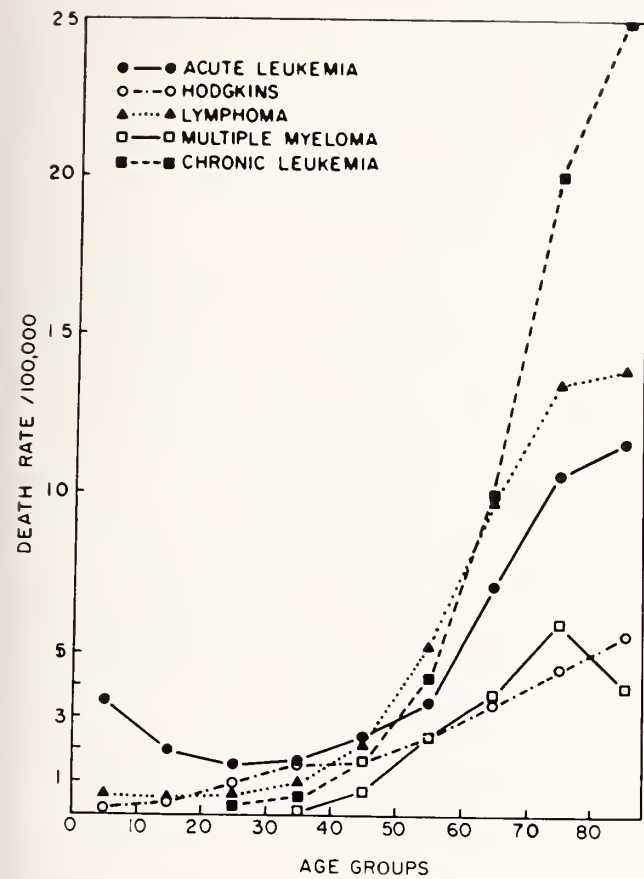


Figure 2. Death rates for each type of leukemia and lymphoma by age group for Kansas, Missouri, and Oklahoma.

declined as the population increased. The death rates were particularly high in towns with populations between 2,500 and 5,000. This was a consistent observation in all three states. After age adjustment, the death rates in the small towns remained the highest in Missouri and Oklahoma, but not in Kansas.

A comparison of death rates in individual counties to the average death rate for the United States is

TABLE 3
COMPARISON OF URBAN AND RURAL
LEUKEMIA-LYMPHOMA DEATH RATES FOR
THREE STATES
(Average of 1950 through 1959)

State	Urban*		Rural	
	NUMBER OF DEATHS	RATE PER 100,000	NUMBER OF DEATHS	RATE PER 100,000
Kansas	1,786	16.2	954	10.0
Missouri . . .	3,567	13.2	1,290	9.0
Oklahoma . .	1,823	14.1	827	8.4
Three States	7,176	14.2	3,071	9.0

* Urban area as defined by Census Bureau is any town of 2,500 or more plus all population of a metropolitan area.

shown in Figure 3. In Kansas, twelve counties had death rates which were $1\frac{3}{4}$ to 2 times that of the United States. In Missouri only two counties had death rates $1\frac{3}{4}$ to 2 times the United States rate and in Oklahoma there was none. To a *limited* degree there was some "clustering" of the high incidence counties, but there were no obvious explanations for the "clustering" such as terrain, industry, etc.

In order to obtain larger population and case figures, each state was divided into nine regions (Figure 4). The division was based mostly on convenience with some consideration for the continuity of metropolitan areas. Most counties in each region have some similarity in geographic and population characteristics. There was considerable variation in the death rates, ranging from 8.7 per 100,000 in southeast Oklahoma to 15.7 per 100,000 in southeast Kansas. The percentage of persons 65 years of age or older also varied rather widely, giving an indication of varying proportions of older age groups in different regions.

TABLE 4
URBAN-RURAL DIFFERENCES IN DEATH RATES OF LEUKEMIA AND
ALLIED DISEASES IN KANSAS, MISSOURI AND OKLAHOMA
1950-1959

Type of Disease	Death Rate/100,000							
	Kansas		Missouri		Oklahoma		Total	
	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL
Lymphoma	4.1	2.6	3.4	2.0	3.3	1.8	3.5	2.1
Hodgkin's	1.9	1.2	1.5	1.1	1.7	1.0	1.7	1.1
Multiple myeloma	1.5	0.8	1.3	0.7	1.3	0.7	1.4	0.7
Lymphocytic leukemia	2.4	2.0	2.1	1.5	2.3	1.5	2.2	1.6
Myelogenous leukemia	1.7	1.0	1.4	0.9	1.2	0.9	1.4	0.9
Acute leukemia	4.6	2.4	3.5	2.8	4.3	2.5	4.0	2.6
All diseases	16.2	10.0	13.2	9.0	14.1	8.4	14.2	9.0

TABLE 5
DEATH RATES OF LEUKEMIA AND LYMPHOMA BY DIFFERENT SIZED TOWNS,
KANSAS, MISSOURI AND OKLAHOMA
1950-1959

Size of Community	Death Rate/100,000							
	Kansas		Missouri		Oklahoma		Total	
	CRUDE	AGE* ADJUSTED	CRUDE	AGE* ADJUSTED	CRUDE	AGE* ADJUSTED	CRUDE	AGE* ADJUSTED
Rural	10	9.0	9.0	7.3	8.4	7.6	9.1	7.9
2,500-4,900	20.7	14.9	20.9	17.3	19.3	16.6	20.4	16.3
5,000-9,900	17.2	14.7	15.4	13.2	16.2	13.7	14.5	13.7
10,000-49,900	16.4	17.2	14.1	12.6	13.5	12.0	15.1	13.8
50,000 +	15.0	15.1	12.6	11.6	13.0	16.0	13.3	13.0

* Rates are number of deaths per 100,000 standardized to the age distribution of the 1960 U. S. population.

There was no linear relationship between a high proportion of older age groups and high leukemia-lymphoma death rates, but age-specific standardization for certain of the regions showed that age grouping was an important factor in regional differences. The regions with the highest death rates included no metropolitan areas, but the lowest rates occurred in regions either rural in character or which resembled the "deep south" in composition (racial, economic, and geographic).

Discussion

The object of the present study was designed to investigate geographic variation in death rates and certain other epidemiologic aspects of leukemia and lymphoma using data available from death certificates. Although the use of death certificates was a convenient method for obtaining mortality data, the information derived did have certain limitations. As

pointed out by Bailar, *et al.*,²⁰ actual incidence rate of leukemia and lymphoma in a population may be substantially higher than that based on death certificates. The difference may be due to several factors. One of these is related to errors in certifying the cause of death. In the study by Barclay and Phillips,²¹ the diagnosis was unsubstantiated in 7.5 per cent of the deaths recorded on death certificates attributed to lymphatic and hematopoietic neoplasms. An additional 1.8 per cent of the deaths due to these neoplasms were not recorded in the death certificates. It was estimated that an error of six to ten per cent could be expected from leukemia data derived from death certificates. In spite of these limitations, the data obtained from reviewing a large number of death certificates can provide useful epidemiologic information.

The data obtained from death certificates recorded

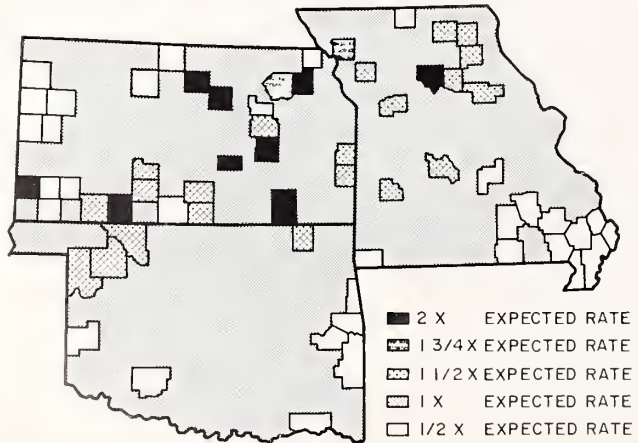


Figure 3. Geographic distribution of leukemia and lymphoma by counties in Kansas, Missouri, and Oklahoma. Comparison with United States.

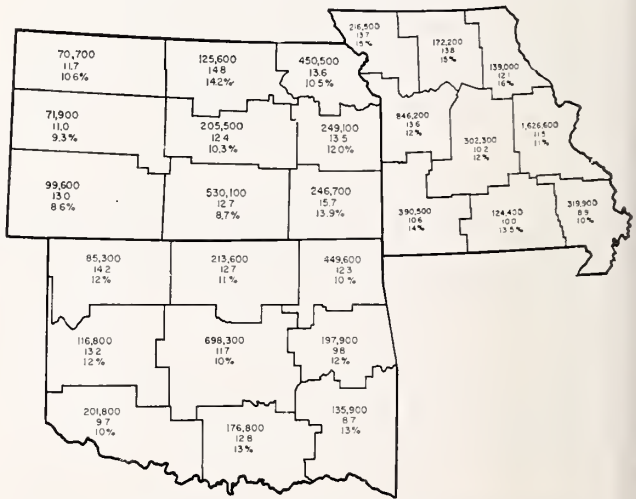


Figure 4. Regional leukemia lymphoma death rates—Top figure: Population of region. Middle figure: Leukemia-lymphoma death rate/100,000. Bottom figure: Percentage of regional population over 65 years of age.

in Kansas, Missouri, and Oklahoma suggest several factors which might be important to explain the differences in the rates observed. The death rates in urban communities were consistently higher than those in rural areas. This was true, not only for acute leukemia and lymphoma, but also for chronic leukemia, Hodgkin's disease, and multiple myeloma. This urban-rural difference has been observed by others^{2, 8, 16, 22-24} in surveying the incidence of leukemia in different parts of the United States.

Our studies indicate that there were considerable variations in the death rates among different sizes of towns. A rather unexpected but consistent observation was the finding of unusually high death rates in smaller towns, particularly in those with populations between 2,500 and 5,000. The reasons for this were not clear. One of the explanations appeared to be related to the age composition of the population. Increase in the proportion of older individuals in the population has been implicated previously as a reason for the increase in the leukemia death rates. Our studies showed that in Kansas, Missouri, and Oklahoma the smaller towns, particularly those with populations between 2,500 and 5,000, had the highest percentage of individuals 65 years of age and older. The effect of age on the variations of death rates was reflected by the age-adjusted rates as shown in *Table 5*. This was particularly evident in Kansas, in which the highest age-adjusted rates were in larger cities.

Meador²² has suggested that population density might be a factor relating to high incidence. Other studies^{5, 25} have produced evidence to discount this, since comparison of metropolitan and non-metropolitan counties showed no significant difference in death rates. These studies, however, had made no allowance for possible differences in the age composition of the populations. Other than the urban-rural difference in our data, no consistent relationship between mortality and population size can be demonstrated. In Kansas the highest age-adjusted death rates were in cities with populations between 10,000 and 50,000 with the next highest in cities with 50,000 or more people. In Missouri and Oklahoma the highest age-adjusted rates were in towns of 2,500 to 5,000 population. This variation might well be influenced to some degree by the difference in the proportion of non-whites to whites in the population of the three states. In all three states, the death rates among the whites were significantly higher than those among the non-whites. This factor was probably more important in the large cities in Missouri and Oklahoma because these states had a higher percentage of non-whites in the population than Kansas.

Pinkel and Nefzger¹⁸ found a striking relationship between leukemia in childhood and upper eco-

nomic levels, but no such correlation in adult leukemia.²⁶ A lack of correlation between cancer (including leukemia) and economic factors was reported by Patno²⁷ and others.^{25, 28, 16} A comparison of median income with death rates in various regions of Kansas, Missouri, and Oklahoma indicated no correlation.

In our studies we found that several small towns with populations of 3,000 to 7,000 had very high death rates for leukemia and lymphoma. Investigation of these areas will be made in an attempt to delineate other factors in the epidemiology of leukemia.

Acknowledgments

We are grateful to Mrs. Helen Lloyd for her valuable help in the clerical and technical aspects of the work.

Summary

A ten-year study of leukemia and related neoplasms in Kansas, Oklahoma, and Missouri was carried out, utilizing 10,247 cases as registered in death certificates for the years 1950 through 1959. The following observations were made.

1. There was some grouping of counties with high incidence, but it was not sufficient to support any theories for the localization.
2. Age-specific mortality rates were analyzed for acute leukemia, chronic leukemia, lymphoma, Hodgkin's disease, and multiple myeloma. Although there were variations in the shape of the age distribution curves, all of these diseases showed increasing incidence with age.
3. The proportion of the population in older age groups was found to be an important factor in explaining some of the variations in death rates among counties and regions.
4. The total death rates for leukemia and allied diseases were significantly higher in urban areas for all three states.
5. Although there was some variation among the three states, the small towns (2,500 to 5,000) had the highest death rates even when age variation in the population was taken into consideration.

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(Continued on page 379)



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., Kansas City, Kansas

(Continued from June)

During the first month after my arrival in Rose-dale, I met Dr. Arthur E. Hertzler. I knew him by reputation and was familiar with his *Treatise on Tumors*. When he called me on the telephone and invited me to have dinner with him at the old Kansas City Club, I accepted with both pleasure and curiosity. I was very curious to see what sort of a man this fabulous Hertzler was. I had the mental picture of a large, rather corpulent, quiet, somewhat pedantic professor of the Old World type, totally lacking in humor. Well, to put it mildly, he didn't fit into this frame at all (*Figure 16*). He didn't fit into any frame or category. A skillful and well-trained surgeon, he seemed at heart to be more interested in surgical pathology than in operative procedures, and perhaps he was unconsciously revealing his interests when he quipped that the only reason he operated was to secure the specimen. We discussed the state of medical education in Kansas, which he thought was at a pretty low ebb, and he told me of his plans to build a great surgical clinic at a little whistling stop called Halstead out in the state, where he could develop his own clinic, run it just as he wished, with no interference from deans or chancellors. He also told me of his plans to write a series of pathological monographs, one on each organ in the body. Later, when this immense project was a

reality and Dr. Wahl had succeeded me in the chair of pathology, he used to remark that he was writing these monographs "just to prove that Harry Wahl was wrong."

Even at that time, Hertzler had a very large library



Figure 16. Dr. Arthur E. Hertzler.

This is the third of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

and had loaned it to the Jackson County Medical Society as he could not install it in his office. Later, he moved it to Halstead, and, still later, many of its most valuable sets were generously presented to the library of the University of Kansas School of Medicine.

Hertzler was a great trial to some of the constituted authorities of the Medical School, particularly to the committee on promotions. He lectured on surgical pathology, and at the close of the term, instead of giving a final examination, Hertzler took the entire class to a baseball game (*Figure 17*).

One of the interesting organizations I joined soon after my arrival was the Kansas City Pathological Society, which met one night a week in Dr. Frank Hall's office. Dr. Hertzler was one of the leading spirits in the organization, and among the other members were Frank Hall, Andy Skoog, Lindsay Milne, George Knappenberger, Edward Gibson, W. K. Trimble, and Leslie Castle, a brilliant young surgeon who, unfortunately, was later a victim of typhoid fever. Here we brought the specimens of tissue we couldn't diagnose or which we thought unusual. Most of my contributions were of the former class. The sections were thrown on the screen and discussed.

At that time Dr. Gibson was assistant in surgery, but, developing a dermatitis from contact with disinfectants in the operating room, he was compelled to abandon surgery and, to quote Hertzler, "secretly and

silently stole away to the tents of the neurologists." Later, he returned to Kansas City and to the Medical School, which he served with distinction as professor of neurology until his death in 1951.

My contacts with the Lawrence division of the Medical School were not close at this time. I always received notices of the faculty meetings at Lawrence but attended only two. At the first meeting, the subject under consideration was the proper hour for the co-eds to be in at night. The faculty debated most of the afternoon without arriving at a decision. On the second occasion, the nomenclature in grades was discussed, should it be 1, 2, 3, 4 or A, B, C, D. When this faculty meeting also adjourned without arriving at a decision, I decided that they were hardly worth an 80-mile round trip journey.

I did, however, frequently visit some of my colleagues in Lawrence to exchange views, to enjoy their companionship, and to see if they had anything I could beg, borrow or steal, for, compared to our standards, they seemed to be rolling in a wealth of equipment. I often visited my old friend John Sundwall, professor of anatomy, who had been a fellow student at Johns Hopkins. Sundwall was rapidly building up a first rate department by any school's standards. Later, he went into other fields, organized the student health service at K.U. over the strenuous opposition of the local physicians, then went to Minnesota as director of student health, and from there to Michigan in the same capacity, serving there until his death in 1950.

John liked to smoke, but his assistant and right hand man in the department, Dr. Smith, was a very vocal enemy of the filthy weed. The students, aware of this hostility, would often smoke until just before coming into the dissecting room and then await his reaction, which was invariably prompt. "You smoke!" Dr. Smith would say sadly, looking at the sinner. "No, doctor, you are mistaken, it's the cadaver you smell, not me." But John was nothing if not diplomatic. After we had talked for a while, John would say, "Let's have a smoke." We would put on our hats, leave the anatomy department, then housed in the basement of Dyche Hall, climb over the hill, and, when safely on the other side, sit down in the grass and light our cigars. Kansas then had an anti-cigarette law, and professors were not supposed to break the law—in public.

One of John's good friends was Merle Thorpe, professor of journalism, who had an unlimited supply of anecdotes and an unusually keen sense of humor. On one occasion, after discussing a meeting of the faculty, he remarked, "You know, fellows, the biology textbooks have not told us the truth. There are really three sexes—men, women and college professors." Shortly afterwards, Merle left Lawrence for



Figure 17. Dr. Hertzler as he appeared to the student cartoonist.

Washington, where he became editor of *Nation's Business* and was soon an outstanding figure in American journalism.

A very picturesque character of this period was S. A. Mathews, professor of physiology. Sam had taught at the University of Chicago for several years before coming to Kansas and, during his career at Chicago and at Kansas, published some first-rate experimental work. He was a very genial, entertaining person, a favorite among the students who appreciated his lack of conceit and his gregarious nature. Sam, however, had the bad habit of talking to himself, a habit that gave rise to many strange stories. He resigned in 1917 and returned to Chicago.

Dr. George E. Coghill, associate professor of anatomy, was at that time also secretary of the faculty, a position which was, after the Dean's, the second best target in the Medical School. Coghill (*Figure 18*) had the unpleasant task of telling applicants to the Medical School that they were refused admission and of informing students that they had failed and must leave school. Some of the students, and many of their parents, firmly believed that Coghill had done these nefarious deeds single-handedly. Many of the fathers were doctors and they demanded that Coghill be fired, since he was not a doctor, only a Ph.D., and, as such, unfit to teach medical students. How many times through the years we heard this complaint not only about Coghill but about many others!

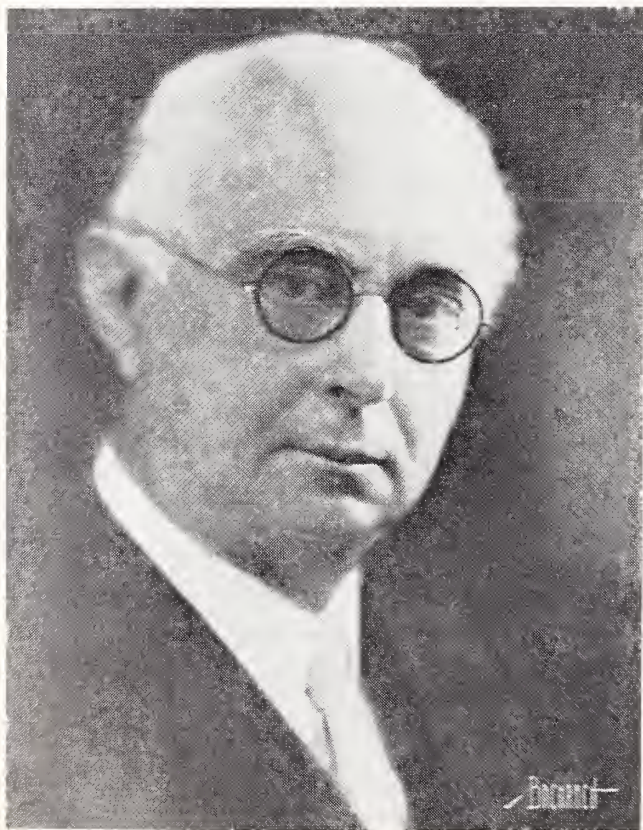


Figure 18. Dr. George E. Coghill.

Several years after, the Chairman of the Board of Administration told Coghill that the students didn't like him and he could never expect an increase either in rank or in salary. So Dr. Coghill resigned and went to the Wistar Institute in Philadelphia, where he had a distinguished career. In 1928, I saw him in London, where he had gone to receive an unprecedented honor, an honorary fellowship in the Royal College of Physicians, the first time an American had been so honored. Dr. Coghill's life and achievements have been recently portrayed in a biography, *George Ellett Coghill, Naturalist and Philosopher*, written by the eminent neurologist, C. Judson Herrick, and published by the University of Chicago Press.

Coghill was succeeded as professor of anatomy by Dr. Henry C. Tracy, an excellent teacher, whose important contributions to anatomy greatly increased the prestige of the Medical School. As secretary of the faculty, Coghill was succeeded by Ole Olufson Stotland, who held the position for years with calm dignity and impeccable accuracy. "Olie," a calm, somewhat majestic, imperturbable scholar of obvious Scandinavian origin, a graduate of Chicago and a physiologist of distinction, was quite a contrast to the volatile and rather fiery Coghill. However, Olie emitted no sparks, there was never any conflagration in his office, and he remained in this important post until his retirement. He collected much data regarding the history of the Medical School, which he has generously placed at my disposal.

Another interesting personality with whom I came in contact was Dr. C. Ferdinand Nelson, professor of biochemistry. A lithe, spare, sandy haired, energetic man, he could discourse with great charm and understanding upon almost any chemical topic. At that time, he was tremendously interested in the new field of vitamins, and his lecture on this subject before Dr. Crumbine's postgraduate course remains one of the clearest and best I have ever heard.

I shall never forget one of my early contacts with the mores of 1914 Kansas. We were guests at Dr. Sudler's home on the occasion of a big football game. Quite a group of faculty members were there, standing around talking on the wide porch, which extended across the entire width of the house and around the sides. Suddenly the group, as if by a prearranged signal, filed, one by one, into the house. I turned to Dr. Sudler with an inquiring expression. "Sh," he whispered, "they've gone inside to smoke a cigarette."

Beer drinking in Baltimore and in San Francisco had never been considered a mortal or even a venial sin, while in Munich, of course, it was considered almost a patriotic duty. In San Francisco, after Dr. Ophüls and I had performed an autopsy, he often

invited me to go to a little German *Restauraton* and have a glass of beer. It was very pleasant to discuss our findings over a glass of beer. One day, after performing an autopsy in a funeral home in Kansas City, I invited the two students who had assisted me to step across the street to a "refreshment parlor" and have a glass of beer. The two students looked at each other, then accepted with an alacrity that suggested they might be afraid I would withdraw the invitation. So we went across and discussed our findings over a glass of beer.

The next day I received a summons to appear at the Dean's office as soon as possible. I went down to the office and was met by Dr. Sudler with a very grave expression. "It has come to my attention that you have been drinking beer in a public place with two of your students. And the whole student body is talking about it."

Seeing my surprised look, he grinned and added confidentially, "It doesn't disturb me in the least, but it would disturb Chancellor Strong (*Figure 19*). Prohibition is one of the main planks in his religious and social platform." So I promised to be good in the future and told him I had learned my lesson. The great lesson I had learned was that news travels fast among medical students.

The second semester opened and with it the courses in pathology and bacteriology. These courses seemed to interest the students and were completed without any noteworthy catastrophes. The final examinations in pathology included a written examination and a practical test in which the students were given five slides and instructed to describe and diagnose them. After the grades had been given out, one student, as I learned through the grapevine, was much dissatisfied with his grades on the practical examination and planned to register his protest with the professor. The following day he came into my office in an obviously belligerent attitude and said that he wished to discuss a very important matter with me. He said flatly that he had been the victim of discrimination, that he had diagnosed all of his slides correctly and still I had given him a poor grade. I pulled out the slides, went over each one carefully with him, showed him why his diagnoses had been incorrect, also that one slide had been badly described and rather hazily diagnosed, but I had given him the benefit of the doubt and marked it correct. The student was obviously convinced. "Oh Lord," he groaned, "Why did I study medicine. I should have been a house painter as I once planned to be." I pointed out that this was his first encounter with the very difficult subject of microscopic pathology and remarked that even the great Virchow had made



Figure 19. Chancellor Frank Strong.

mistakes. He was obviously cheered up by this remark, shook hands with me, and left.

He had hardly left the room when another student came in, so excited that at first he found it difficult to express himself. Finally, he told me that he had been appointed spokesman for the rest of the class and wished to tell me that the other students did not feel the way Mr. X did and that they did not think they had been treated unfairly. I assured him that Mr. X and I had had a very satisfactory talk and that he left me apparently quite satisfied. He also seemed greatly relieved. I learned later that Mr. X had come up to my office with the intention, expressed to the other students, of "beating up that new professor."

The department of pathology had, apparently, met with the approval of the Dean. He decided to give me a full-time technician and also appointed two additional student assistants, Donald R. Black and Robert C. Davis. These two new assistants, faithful, industrious, and hard working, took many burdens from my shoulders. It is a pleasure now to pay a somewhat belated tribute and to express my appreciation of their invaluable assistance. Their subsequent success in the practice of medicine has given me much satisfaction, coupled with the hope that

their work with me may have contributed to their later success.

The following summer was spent in Baltimore, where I served an interim appointment as resident pathologist to the Johns Hopkins Hospital. This gave me additional experience in the technique of post mortem examinations as well as in gross and microscopic pathology. It gave me even more. I persuaded Joe, the chief technician, to give me a bit of hardened tissue of every section studied in their course of pathology. After I had assembled the bottles containing all this tissue and much more besides, they were packed and sent by express to the pathological laboratory in Rosedale. This material made it possible for us to illustrate all the pathological conditions with slides and not with blackboard sketches.

Joe was the type of laboratory technician common in the pathological laboratory of those days. He had never studied medicine or biology or microscopy, but he had stained and examined thousands of slides and could diagnose them with an uncanny accuracy, although he could never explain how he did it. His colleague, John, had seen many thousands of autopsies in Vienna before he came to this country, and his forte was gross pathology. When John whispered that the swelling seen at the autopsy was a gumma and not a sarcoma as the instructor said, I felt sure John was right. John eventually lost his position after an unfortunate New Year's Eve event when he was summoned from a convivial party to assist at an autopsy and lost the body somewhere between the medical ward and the pathological building. I learned much pathology from Joe and John.

I soon found, without any great effort on my part, that the Medical School was not popular with many members of the medical profession in Kansas City or in the State of Kansas. Some of the doctors in Topeka felt that the school should have been located there; many doctors in Wichita felt it should be in Wichita; while some physicians in Kansas City thought it should be located on Minnesota Avenue and not "on that Godforsaken hill in Rosedale, just a couple of blocks across the line from Kansas City, Missouri." This proximity to Kansas City, Missouri, was, however, no great source of comfort as our champions there could be counted on the fingers of two hands. There, we were usually dismissed with a shrug of the shoulders and a remark about that "one horse" Medical School which was struggling along with a few importations from the East. These would presently retire when they realized the place would soon close its doors.

This unpopularity of medical schools and their imported professors, among the local profession, seems to be an age-old and possibly continuing frame of mind. I recall a story Dr. Sudler once told me. When

he was a boy on the eastern shore of Maryland, a doctor came to visit his father. "I see in the papers," remarked his father, "that you are going to have a medical school in Baltimore named after old Johns Hopkins." "Yes," answered the doctor, "and what a mess they have made of it. Instead of choosing their faculty from the profession in Baltimore, which is filled with able men, what did they do? They went to New York and brought down a fellow named Welch and to Philadelphia, where they found a fellow named Osler. Nobody in Baltimore ever heard of them."

The Medical School at Rosedale had no Welch or Osler, nor have we had them since. But there were many critics, just as there had been in Baltimore. I met many of these critics in the following years. I found them mostly men of integrity and ability, sincere in their convictions, and genuinely interested in medical education. Although I was placed "on the other side of the fence," as it were, they always treated me with the utmost consideration and courtesy, and many of them I counted among my friends. I had nothing to do with locating the school in Rosedale; I had been invited to take the chair of pathology; and I had a job before me—to teach and to learn. So I felt the best policy for the school, as well as for me, was to keep still and "saw wood."

During the next few years, the affairs of the Medical School did not seem to prosper. The great need, of course, was more money. The catalogue for 1914 contained the following "suggestion":

It is costing the warring nations of Europe \$30,000 to destroy a human life in battle. Would it be too great a contribution for the wealth and civilization of Kansas if it were to appropriate the amount which it takes to kill two and a half men in battle for the annual maintenance of an institution, which has for its purpose the training of men and women in the art of treating and preventing disease?

But such pleas fell upon deaf ears.

The legislature, from our point of view, was composed of a few friends, more enemies, and then the great mass of indifferents. The governor of the state, at the time of my introduction to state politics, was rather friendly to the school; his successor was definitely hostile, proposing on one occasion that the state abolish the Medical School and subsidize the medical students, sending them out of the state to get their medical education. Later, after the rather reluctant state legislature had passed a very modest appropriation bill for the Medical School, the governor, in a public statement, said that he was signing the appropriation bill with no enthusiasm and that he would like to veto the appropriation for the Medical School but could not do so without vetoing the appropriation

for the entire university. Some years later, when he had risen to a higher niche in political life, he visited the Medical School and Hospital for the first time, was most enthusiastic about what he saw, and congratulated us sincerely, I am sure, on the work we were doing. No one, of course, referred to his past hostility, and we were happy to let bygones be bygones.

Many of our critics in the legislature had never visited the Medical School. One such critic, who had attacked the school repeatedly, agreed to visit us, after the Dean wrote him a letter suggesting that it was not quite fair of him to attack an institution he had never seen. This legislator came down, spent a day, and returned home, a fast and firm friend. And his conversion lasted. In later years, he was one of our leading champions. Most of our critics, however, avoided us and shunned the Medical School and all its works.

From time to time, committees from the legislature would visit the Medical School. After they had climbed to the top of "Goat Hill," getting rather dyspnaeic in the process, had stood on its heights, and looked out over the dreary expanse of rocky and hilly real estate, the legislators seemed rather silent and subdued when we talked about covering these hills with new buildings.

However, there was a momentary rift in the clouds. The out-patient department had been conducted in six small rooms in part of the basement of the new hospital building. The number of patients was growing, and even the indifferent committee members, who came down from the legislature, could see that either we had to have more space for the out-patient department or we had to abolish it. The legislature finally appropriated \$25,000 to build a new dispensary building, as the out-patient department was then called.

The plans for the new building were finished only one month before the date for the expiration of the appropriation, but the contract had not been let. Dr. Sudler succeeded in finding a contractor who agreed to construct the building in one month and did so, working at night under powerful electric lights. The new building was opened with appropriate ceremonies, an address by a member of the Board of Administration, some remarks by the Dean, some songs by the nurses, and a dance.

This dispensary building was the last building erected on the old campus, and, while it was rather hastily assembled and we soon found that it could have been much better planned, it did give us much needed space. We now had, instead of six rooms, a two-story building for out-patients. A laboratory was equipped on the second floor for routine laboratory tests and placed in charge of Dr. W. K. Trimble, a most competent clinical pathologist.

We hoped that the legislature had heard our cries

of distress and would come to our aid by building an adequate plant. The state architect drew up a plan for a large medical center, costing three and one-half million dollars. Soon we had an impressive looking sketch, showing medical wards, surgical wards, a building for pathology, an enlarged out-patient department, and a nurses' home. Every time a committee from the legislature came down, we trotted out the impressive looking sketch and told them of our—shall I say—grandiose plans for the future. But they remained unimpressed. One legislator asked me jokingly one day if we wouldn't need a funicular railway to transport patients from one hill to another. We showed him a sketch (*Figure 20*) which answered his query. So the plans remained on paper, and, in retrospect, it is well that they did. To visualize our present plant, whose buildings already crowd the 16-acre site, placed on the hills and ravines which composed the original seven and one-half acres would strain the imagination of even the most talented architect.

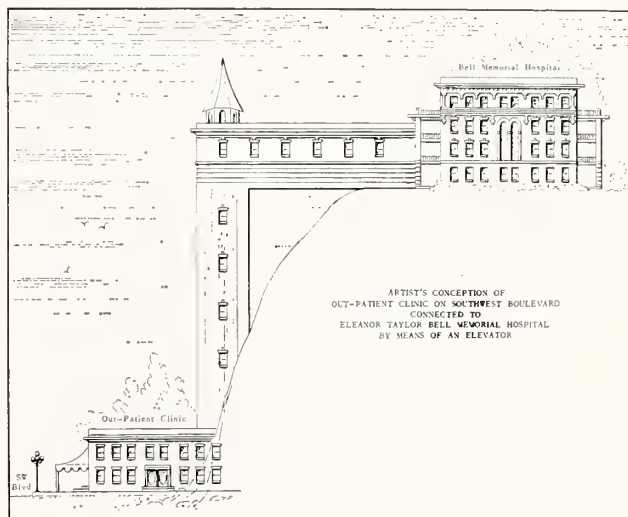
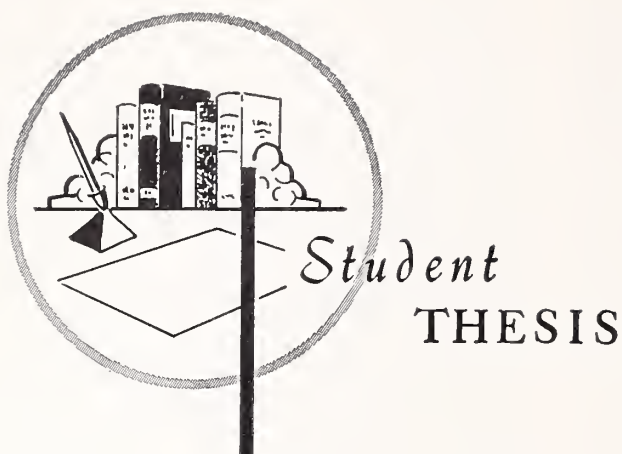


Figure 20. Future building plans.

In those days, the nurses lived on the second floor of the original Bell Hospital, and to describe their quarters as primitive is certainly no overstatement. I recall one mother of a pupil nurse. She was so distressed in seeing her daughter's quarters that she wished to take her home. However, the daughter liked her school, was enthusiastic about her work, and finally persuaded her mother to let her stay and finish her course.

(To Be Continued Next Month)

A recent study shows that driver error caused 85 per cent of the highway accidents in 1959.



Role of Renal Arteriography in Evaluation of Hypertensive Patients

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THE DIAGNOSIS AND ETIOLOGY of hypertension has been a major problem confronting the medical profession for many years. Although advances have been made, we still do not have an adequate diagnostic test for many causes of hypertension.

We define renovascular hypertension as high blood pressure caused by occlusive disease of the renal arterial vasculature which is potentially curable by reconstructive arterial surgery or by nephrectomy.

Aims

The purpose of this paper is to discuss some of the recent developments concerning hypertension, specifically renal hypertension. We do not propose to merely review the literature on this subject, but rather point out the use of and our findings with renal arteriography in the diagnosis of hypertension of renal origin.

This study was done from hypertensive patients at the University of Kansas Medical Center and St. Luke's Hospital in Kansas City, Missouri. These patients all had renal arteriograms done during their hypertensive workup. Our study is compiled to cor-

relate the (1) findings on renal arteriography, (2) duration of hypertension, (3) other abnormal tests, (4) operation done, if any, (5) type of lesion found, and (6) postoperative course and blood pressure. From our findings we will attempt to evaluate the accuracy of renal arteriograms, and try to conclude which supplementary tests are the most productive.

History

There have been many attempts in the past to produce persistent hypertension in animals. Some of these methods were injections of nephrotoxic substances, irradiation of the kidneys by x-ray, renal venous status and excision of varying amounts of kidney tissue with or without ligation of branches of the renal artery. These methods did not produce a sustained elevated blood pressure. Fahr, in 1925, suggested that renal ischemia might have an important role in the development of hypertension, but at this time this contention had not been investigated experimentally in animals. In 1948 Goldblatt published his now famous report on the elevation of blood pressure as a result of constricting only one renal artery. The blood pressure would rise in 24 to 72 hours and remain elevated, usually for six weeks and rarely six months. The pressure usually reached its maximum point in about one week, leveling off for a week then returning gradually to normal in about six weeks.

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Strand and Dr. Murphy are now first year residents in surgery—Dr. Strand at Kansas City General Hospital and Medical Center, and Dr. Murphy at the University of Kansas Medical Center.

These same experiments with sheep and rats produced elevated blood pressures that usually lasted for months. Another important observation was that removal of the kidney with constriction on the renal artery resulted in a return to a normal blood pressure in 12 to 24 hours. These results suggested that hypertension in humans might be caused by lesions involving only one kidney and that excision of the involved kidney, if the contralateral kidney was normal, might result in the return of the elevated blood pressure to normal.

Selection of Patients in the Study

The criteria for selection of patients in this study was of wide magnitude. The only consistent criteria was that the patients be hypertensive and no etiology for their hypertension be known. This wide variation is explained by the fact that many were private patients seen by many physicians in the Kansas City area. Therefore, all hypertensive patients having renal arteriograms were included.

Materials and Methods

The diagnostic tests used in our patients included radioactive renograms, intravenous pyelograms, renal scans, split-function studies, Hippuran, PAH, history, physical, and KUB films.

Three major technics are available for renal arteriography: translumbar aortography; percutaneous transfemoral catheterization; and percutaneous selective renal arteriography. Most of our cases were done by the percutaneous transfemoral catheterization method. This procedure was introduced by Pierce and modified by Seldinger.

The materials for this technic consist of a needle, a soft coil-spring guide wire, and a radiopaque polyethylene catheter with an open end and four side holes placed near the tip of the catheter. Either

needle puncture or a cut-down on the femoral artery is performed first. The coil-spring guide wire is inserted through the needle and passed a short distance upward into the iliac artery. The needle is then removed and the catheter passed over the guide wire into the femoral artery. Under fluoroscopic vision the catheter is passed into the abdominal aorta until it lies one to two centimeters above the level of the renal arteries, which are located at approximately the L-1 vertebra. Then 20 ml. of contrast medium is injected through the catheter by means of a pneumatic injector, and serial films are taken using a rapid film changer.

We regard percutaneous transfemoral arteriography the method of choice in most patients. Older patients with obvious aorto-iliac atheromatous diseases, however, should be considered a contraindication to this method. The translumbar approach would be the only one available in these cases.

Results of Our Study

This study consists of 69 patients who have had renal arteriograms done at KUMC and St. Luke's Hospital (*Table 1*). Forty-six of these patients revealed some type of renal artery lesion. Thirty-two of the patients had renal artery stenosis, fibromuscular hyperplasia, or an aneurysm involving one or more of the major renal arteries. The remaining 14 patients showed severe tortuosity, notching, or abnormal vascularity of one of the poles of the kidney.

Seventeen of the patients with positive lesions diagnosed by arteriograms were operated. All of these patients had some type of obstructing lesion found at the time of surgery (*Table 2*). Most of these lesions were corrected by endarterectomy. Nephrectomy was performed only when gross severe parenchymal disease was evident. The average pre-operative blood pressure on the operated patients was 221/112. The average postoperative blood pressure was 144/85.

TABLE 1
FINDINGS ON ARTERIOGRAPHY IN 69 HYPERTENSIVE PATIENTS

Number of Patients	STENOSIS	Positive		TORTU- OSITY	Questionable		Negative	Patients With Some Finding
		HYPER- PLASIA	ANEU- RYSM		NOTCH- ING	↓ VASCU- LARITY		
K. U. patients 39	21	2	1	5	1	1	8	31
St. Luke's patients 30	6	1	1	2	4	1	15	15
Combined patients 69	27	3	2	7	5	2	23	46

TABLE 2
ARTERIOGRAPHIC FINDINGS ON OPERATED
PATIENTS

	Arteriogram (+)	Operation (+)
Plaque	14	12
Fibromuscular		
Hyperplastic	2	3
Thrombosis	1	1
Nothing	—	2
	—	—
Total	17	18

One of the patients died of carotid artery thrombosis on the second postoperative day. There was no follow up on one of the patients. The remaining patients have been followed for an average of eight months. The lowest blood pressure occurred during the second postoperative month. One of the patients had no response after nephrectomy; we feel this may have been due to extensive parenchymal disease in the opposite kidney.

The most common lesion found at operation was localized atherosclerotic plaques (*Figure 1*), occurring in ten of the 17 operated patients. Fibromuscular hyperplasia (*Figure 2*) was found in three patients; two of the patients had very small ischemic kidneys with atrophic renal arteries; one patient had an abdominal aneurysm involving the right renal artery and thrombosis.

A localized plaque was diagnosed from the arteriogram in 14 cases and found in 12 cases. Fibromuscular hyperplasia was diagnosed twice and found three times. In one patient the artery did not visualize and a thrombus was found. Three patients showed

abnormal renal arteries on arteriograms, but nothing was found in that artery at operation.

Twenty-two of our patients were females and 17 were males. The average duration of known hypertension was 4.3 years, with a range of one month to 18 years. The mean duration was two years. Atherosclerotic plaques were the most common lesion in both males and females. Fibromuscular hyperplasia was present in one male and two females.

Radioisotope renograms using I¹³¹-labeled sodium o-iodohippurate (Hippuran) were performed on 12 of our patients. All of these patients showed decreased function with the Hippuran study. Normally the renogram curves are identical from both kidneys. Although several efforts have been made to quantitate the procedure, at present the interpretation is purely qualitative and consists of visual comparison



Figure 2. Characteristic fibromuscular hyperplasia seen on arteriogram.

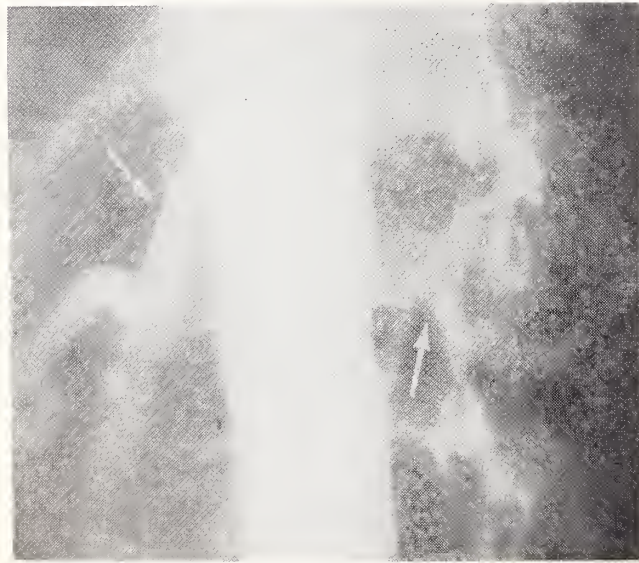


Figure 1. Characteristic atherosclerotic plaque seen on arteriogram.

of the two curves. Artifacts may be caused by improper placement of the scintillation counters. The height and shape of the curve may be affected by collimation, ratemeter speed, position of the patient, hydration, and thickness of the body wall.

All of our patients received intravenous pyelograms (IVP), of which nine were abnormal and eight were normal. Abnormal IVP's were largely that of differential concentration, usually decreased concentration of dye on the affected side in the five minute film. Difference in "appearance" time of the dye was noted in two of the patients, both were delay in appearance in the three minute film. We realize comparison of relative dye concentrations is, of necessity, inexact and subjective. Variations in techniques of pyelography, the number of films and times of exposure following injection, overlying gas shadows, and other artifacts make it difficult to compare different series.

In agreement with our data, Block, Hines, and Burrows reported that of 17 patients with unilateral renal hypertension, all had abnormal renograms by radioactive scan while only 12 had abnormal intravenous pyelograms.

Twelve of our patients were noted on either IVP or KUB films to have decreased size of one of the kidneys. Ten of these cases were found to be true at operation. However, in comparing kidney sizes, it should be recognized that in normal individuals the left kidney is somewhat larger than the right and that this difference in one series averaged 0.8 cm. Some people believe a difference in the long axis of the kidneys over 1.5 cm., particularly with a normal pelvocalyceal pattern, is considered to be strongly suggestive of renal artery stenosis. In our patients, the kidneys were not measured at operation, so we do not have the exact dimensions. However, ten out of 12 patients in our study did show a discrepancy in the size of the kidneys. We believe asymmetrical kidney size should be noted as it may indicate unilateral kidney disease.

Intravenous pyelography, when combined with specific history and physical findings, should be considered a helpful screening test in the diagnostic workup of hypertensive patients.

Renal scans (radio-chlormerodrin) were done on six of our patients, of which all were abnormal. The renal scan is produced by the activity in the proximal tubules. Any process that reduces tubular uptake and destroys or displaces parenchyma will be reflected in the renal scan as a region of hypoactivity. This technic fills the void left by the intravenous pyelogram in which parenchymal lesions are postulated from changes in the renal silhouette, calyceal displacement, and distortion. The scan provides a better index of tubular function than does the urogram. The renal scan is easy to administer and has the advantage of being free of the usual hazards of radiographic contrast media. Some of the disadvantages of renal scanning are that the patient must lie immobile for 45 to 60 minutes with conventional scanning equipment. Another disadvantage is the cost of renal scanning. We believe renal scanning is very valuable in confirming or negating apparently abnormal intravenous pyelograms. This would provide a better selection of patients to be subjected to renal arteriography.

The 16 patients operated at KUMC for their hypertension were as follows: Seven of the patients were found at operation to have badly diseased kidneys unilaterally so nephrectomies were done. Three of these were apparently due to pyelonephritis as well as stenotic renal arteries; the other four were stenotic. Segmental resection of the stenotic portion

and endarterectomy was done on the remainder of the patients. Partial nephrectomy was done in one patient because she was found to have thrombosis of an aberrant renal artery.

Nephrectomy is the procedure of choice in poor risk patients, in patients whose contralateral kidney is still unimpaired and in patients in whom restoration of renal artery flow is technically infeasible. The disappointments which followed the indiscriminate use of nephrectomy in the past have been well documented. Before this procedure is undertaken several factors should be carefully considered. Functioning renal tissue may be reduced; if the procedure fails to reverse hypertension no second stage is available. The procedure is definitive; the chance of cure is poor if the disease is diagnosed late or if the disease is severely advanced.

The indications for nephrectomy were generally clearly defined by pre-operative studies; occasionally, however, the decision for nephrectomy was made at the time of operation. Severe unilateral parenchymal disease, renal infarction, advanced unilateral occlusive disease involving the entire renal artery or its branches, and failure of antecedent angioplastic operation are the most important criteria for nephrectomy. Stewart, DeWeese, Conway, and Correa used the above criteria in 20 nephrectomies done for hypertension. Of these patients, 41 per cent were normotensive and 45 per cent were improved; therefore operation was of benefit in 86 per cent.

Partial nephrectomy is a feasible surgical procedure which warrants more general use when isolated disease is present. Poutasse has demonstrated the value of partial nephrectomy in segmental renal arterial disease. Gray, Biorn, and Drinker discuss the indications, evaluation, and technic of partial nephrectomy. They conclude this procedure has not been employed as often as it is indicated, especially with the newer advances in surgical technic and antibacterial agents to protect against persistent infections.

The patients receiving nephrectomies in this study were all under 47 years of age and had been hypertensive for less than five years with one exception. This was a 42-year-old male, hypertensive for 13 years, who was found to have a small ischemic kidney with a large cyst at operation.

Renal arteriograms at another hospital (St. Luke's) were also reviewed, but their criteria, technic, and results were widely varied from that of KUMC; thus they are considered separately.

Arteriograms were done on 30 hypertensive patients in an effort to find a renal artery lesion. The patients were of similar age, sex, and duration as those studied at KUMC. Six of these patients were diagnosed as having a localized atherosclerotic plaque

causing occlusion, four patients were diagnosed as questionable stenotic lesions, 15 were found to be negative, and ten patients had other findings. These consisted of angulation, tortuosity, tapering, or decreased vascularity. However, 14 of the 30 patients (47 per cent) had some positive finding by arteriography. Only one of these patients was operated. She was a 47-year-old white woman with a preoperative blood pressure of 220/130 and a postoperative blood pressure of 140/80. An end-to-end anastomosis and resection of stenotic area in the right renal artery was done.

We believe the lower incidence of positive findings in the St. Luke's group can best be explained by the fact that no definite criteria was required to precede the arteriograms. These were private patients of individual practicing physicians and the hypertensive workup was different in nearly every patient. However, even with this, the results of 47 per cent positive findings correlates with the results of other investigators, namely Poutasse, Dustan, and Page. These lesions were by x-ray diagnosis which may or may not correlate with the operative findings. We must remember that this procedure serves only to locate an anatomical lesion. Whether or not the lesion is causing hypertension must be decided by clinical evaluation and other tests described. It is unknown how many individuals without hypertension have renal arterial stenosis. Eyler and associates noted plaques in the renal arteries of 46 of 221 normotensive patients examined by abdominal aortography. We believe the study from this particular hospital should be noted but a definite conclusion cannot be drawn.

Renal Biopsy

It is a well established fact that both normotensive and hypertensive persons may show radiographic abnormalities. Sutton found that ten per cent of hypertensive patients had evidence of renal artery stenosis. Page, Dustan, and Poutasse in a six-year study demonstrated occlusive disease of the main renal artery or its primary branches in 28 per cent of their cases. Morris showed aortic and large abdominal vessel disease in 55 per cent of 642 aortograms. More critical methods of determining the necessity of surgery to curb hypertension are needed with the frequency of abnormal aortograms associated with elevated or normal blood pressures. Renal split-function studies have been of limited value in predicting the outcome of patients after operations for renal vascular hypertension. When diffuse intrarenal arterial disease is present the results of split-function studies may be equivocal. Diffuse bilateral intrarenal obliterative sclerosis in arteries and arterioles may produce the same hemodynamics as hypertension of renal artery stenosis. These lesions may not develop

symmetrically and split-function studies may show involvement of one kidney more than the other; this could lead to mistaken diagnosis of unilateral kidney disease. If a patient is presented where bilateral renal disease is suspected and renal biopsy of the "good" kidney shows diffuse disease, the lesion is probably a diffuse bilateral intrarenal arteriolar disease. But if the biopsy shows very little or no vascular disease, the lesions are more likely to be in the main renal artery or a primary branch and correctable by an operation. Percutaneous renal biopsy was introduced about ten years ago; it is a safe, practical method of obtaining renal tissue. The main indication for renal biopsy is for diagnosis. Muth reports on 500 renal biopsies. The criteria for an adequate examination was eight or more glomeruli on biopsy. He obtained adequate tissue for interpretation in 95 per cent of his cases. Tissue with less than eight glomeruli was two per cent and no tissue was three per cent of the biopsies. The average number of glomeruli obtained was 24. The complications reported were gross hematuria for more than three days in nine patients; two of these required blood replacement. Two patients had perinephric hematomas, and there was severe pain at the biopsy site in two cases. There was no operative intervention or mortality reported. The contraindications for renal biopsy were divided into two groups: absolute and relative. The absolute contraindications are uncooperative patients, bleeding diathesis, and a single kidney. The relative contraindications are congenital anomaly of the kidney, severe or prolonged malignant hypertension, and severe prolonged uremia. With the relatively low incidence of complications following renal biopsy, we feel that renal biopsy is a valuable tool in the diagnosis of diffuse bilateral intrarenal arteriolar disease.

Aberrant Vessels

During embryologic development, the kidney is formed of five metamereres, each having its own blood supply. The metamereres fuse to form a single renal mass but the arterial representation remains the same. The kidney is then divided by five vascular areas, each supplied by a primary branch of the renal artery or by an artery arising separately from the aorta. For this reason we should suspect that double renal arteries would be common, and this is found to be true. Whether or not the aberrant vessels are related to the hypertension is a disputed question.

In our study 40 per cent of the patients had aberrant vessels and were hypertensive. In reviewing the literature there is dispute concerning the importance of aberrant vessels in renal hypertension. Congenital deviations in the configuration from the "anatomic norm" of the renal artery were described as "aberrant renal arteries" by Derrick and Tyson. Random

samples of 110 autopsy aortas were taken. Aberrant renal arteries were those that had multiple origins from the aorta. The over-all incidence of aberrant renal arteries was 22.7 per cent of the 110 patients. Twenty-nine and one tenth per cent were hypertensive by the criteria of an average blood pressure of 140/90. When the group was divided into those with aberrant and those with normal renal arteries, 17.7 per cent of the normal group exhibited clinical hypertension and 68 per cent of those with aberrant vessels were clinically hypertensive. Thirty-two per cent with aberrant vessels were normotensive. In an analysis based on the dissection of 185 adult kidneys, Merklin and Nickels report that the renal artery is double in ten per cent of the cases and single in 72 per cent. Poutasse reports there is no significant difference in the incidence of aberrant renal arteries in hypertensive and normotensive patients. From our study, we cannot draw a conclusion that aberrant vessels are a primary cause of renal vascular hypertension.

¹³¹I-Hippuran

There is need of a simple method of evaluating the function of each kidney in the routine examination of hypertension. While the intravenous pyelogram is of considerable assistance in revealing abnormalities of structure, it is of limited value in the assessment of renal function and in the detection of mild renal ischemia. Isotope renography, which was introduced by Taplin (1956), has been used for this purpose. The procedure involves the recording of the counting rate registered by deflectors placed over the kidneys after an intravenous injection of radioisotope-labelled compound showing rapid urinary excretion. The compound used at this hospital and in our study was ¹³¹I-Hippuran. Normal ¹³¹I-Hippuran renograms show three phases: vascular, secretory, and excretory. Impaired renal function is characterized by a decrease in amplitude of all phases. Factors influencing this test are blood flow to the kidney, renal blood volume, renal excretory activity, size of the renal pelvis, and the rate of urine flow from the kidney to the bladder.

Doig, Lawrence, Philip, Tothill, and Donald on a study of 203 patients undergoing routine hospital investigation of hypertension found good agreement of pyelogram and renogram findings in 77 per cent of cases. Discrepancies occurred most often in renal artery stenosis. Seven cases with unilateral arterial lesions were found, of which six showed abnormalities in the renogram indicating disparity in function between the two kidneys. However in only three instances did the pyelogram suggest the possibility of this diagnosis. Abnormalities in the renogram are rarely diagnostic of the underlying renal disease. In

renal artery stenosis, however, the intravenous pyelogram may be normal, and the finding of a normal pyelogram with disparity in the renogram is of considerable diagnostic significance.

In our study 12 of our patients received ¹³¹I-Hippuran studies during their workup. All 12 of these patients had abnormal function. Abnormal function was diagnosed when the disparity between the two kidneys was greater than 20 per cent.

We believe ¹³¹I-Hippuran renography used in conjunction with intravenous pyelograms is of considerable value in the workup of hypertensive patients and in the selection of patients for renal arteriography.

Renal Complications From Aortography

In 1954 Miller, Wylie, and Hennar reported on the damage to kidneys following translumbar aortography. Kidney damage was observed in seven patients in a two-year period. During this time approximately 250 aortograms were done, and 90 per cent were performed by surgeons. The seven known cases of renal complications represents a three per cent incidence of complications. From a theoretical standpoint, the groups fall into two main groups: (1) direct trauma, subdivided into (a) misdirected needle, (b) excessive pressure or volume, and (c) chemical irritation from the radiopaque media; and (2) indirect damage, subdivided into (a) drug toxicity or idiosyncrasy (diodrast, iodine) and (b) neurogenic factors. Three of the seven patients fell into group one; four were in group two.

A review of the literature by Grossman and Kertly in 1958 revealed five reported cases of paraplegia after translumbar aortography. They also reported on one of their patients but could give no reasons for the paraplegia.

A review of 13,207 abdominal aortograms was done by McAfee in 1957; he reported 37 deaths and 98 serious complications. The over-all complication rate was 1.02 per cent and the over-all mortality rate was 0.28 per cent.

Beall, Morris, Crawford, Cooley, and DeBakey reported on 1,625 consecutive translumbar aortograms. They did not have a single death or major complication but reported six deaths before using their present technic.

An analysis of the complications shows 12 cases of a hematoma formation, four cases of thrombosis, but no embolic phenomena. One false aneurysm formation was reported, and there were four complications related to guide wires or catheters. There were no reported cases of renal damage or infection from the procedure.

An analysis of the problems of technic reveals that

in 46 cases there was a problem of technic. These were: one failure to puncture the femoral artery, 23 cases of difficult passage of the catheter, two examinations were discontinued because of bleeding around the catheter or the onset of angina and bradycardia prior to injection, and 21 cases of failure in catheterizing the desired vessel.

The risks of selective renal artery catheterization and arteriography were studied in 18 dogs by Edleng and Ovenfors. Their findings revealed that the injection of large amounts of contrast media is usually followed by renal injury but there is no constant relationship between the amount of contrast media, the concentration of the media, and the degree of renal damage. The authors suggest the renal damage could be caused by both the contrast media and renal ischemia. The renal ischemia would increase the nephrotoxic effect of the contrast media. Lindgren, Morris, and Lasser found a more constant relationship between the concentration of the contrast media and the degree of renal damage. Stokes and Bernard suggested that differences in molecular structure might be the reason why some contrast media are more nephrotoxic than others. Boijesen relates that every selective catheterization causes a reduction in renal blood flow and if the catheter enters a narrow branch of the renal artery, renal ischemia could result.

During the past three years, 1,000 percutaneous catheter arteriographies were performed by the Department of Radiology of the New York Hospital, Cornell Medical Center. The age ranged from two to 84 years and 39 per cent were hypertensive patients. The femoral artery was the preferred site for percutaneous punctures. The brachial and axillary vessels were secondary sites. The contrast media used were diatrizoate salts in concentrations of 50 per cent to 90 per cent and sodium iothalamate. There were no signs of renal damage in the patients undergoing either aortography or selective renal arteriography. Technical procedure problems occurred in 7.4 per cent of the cases, but successful diagnostic conclusion of the examinations was obtained in all but 1.4 per cent of the cases. Significant complications occurred 2.4 per cent of the time and of these, 0.7 per cent required a corrective operative procedure and none appeared to have done permanent damage to the patient.

Value of Renal Arteriography

This study, as well as many others, points out the fact that obstructing lesions of the renal artery are recognized as important causes of hypertension. The importance of definitive diagnosis of renal artery obstruction lies in the fact that hypertension secondary to such lesions is potentially curable.

One of our hospitals performed renal arteriograms

on almost all patients in whom the cause of hypertension was obscure. At KUMC arteriograms are done only when the clinical findings and laboratory screening examinations, such as intravenous pyelograms, split-function studies, Hippuran clearance, and renal scans, almost certainly indicate the presence of renal artery disease. This conservatism at the K.U. Medical Center is attested to by the fact that 62 per cent of the patients had positive findings. We would suggest intravenous pyelograms and Hippuran clearance studies as good diagnostic screening tests to precede arteriography.

Poutasse and Dustan reviewed their patients and indicated renal arteriography in their patients with (1) urographic evidence of disparity in renal size or function, (2) age, under 35 years in patients without a family history of hypertension, (3) malignant hypertension in elderly hypertensive patients, (4) sudden acceleration of hypertensive vascular disease, and (5) known sudden onset of hypertension. They later modified their criteria to include flank pain, epigastric bruits, and malignant hypertension in patients older than 60 years.

Summary

Sixty-nine patients with suspected renal hypertension were evaluated at two Kansas City hospitals. Renal arteriograms were done on all of these patients during their workups. Thirty patients at St. Luke's were included; 50 per cent of these patients had some positive finding on arteriograms. The University of Kansas Medical Center had positive findings in 79 per cent of 39 patients. The difference between the hospitals' findings can be explained by criteria and preceding diagnostic tests. The patients at KUMC were more thoroughly worked up before the renal arteriograms were done. The average duration of known hypertension in these patients was 4.3 years.

Other abnormal tests included intravenous pyelograms, I^{131} -Hippuran, split-function studies, creatinine clearance, and renal scans. I^{131} -Hippuran and renal scans proved the most helpful; both were abnormal in the operated cases in which they were done.

Seventeen patients in this study were operated; one of these patients was operated twice. The operations included seven nephrectomies, four endarterectomies, four resections and end to end anastomosis, and two bypass grafts. Significant reduction in blood pressure was obtained in all patients with one exception. This patient was a 69 year old female who had a left nephrectomy.

Atherosclerotic plaques were found most frequently, being present in ten patients. Fibromuscular hyperplasia was found in three patients.

The average pre-operative blood pressure in the operated patients was 221/112. The average post-

operative blood pressure was 144/85. Most of these patients have been followed for a period of eight months.

Conclusion

This study demonstrates that renal angiography is an important diagnostic adjunct in the evaluation of hypertension. We conclude that hypertensive patients with one or more of the following criteria are candidates for renal arteriograms: (1) a history suggesting renal hypertension; rapid onset, rapid acceleration, or hypertension in a patient under 35 years of age; (2) physical findings of an abnormal bruit or an abdominal mass; (3) intravenous pyelogram which demonstrates renal or renovascular disease; difference in size, function, dye appearance time, concentration, and irregularities of contour; (4) I^{131} -Hippuran studies showing abnormalities in structure, function, and renal ischemia; (5) renal scans showing an abnormal silhouette, calyceal displacement and distortion, and diseased function.

We believe that the renal arteriogram is the single most important diagnostic study available in evaluating renovascular hypertension.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

Bacillary Dysentery

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Tumor CONFERENCE

Mycosis Fungoides

Edited by WILLIAM S. TIHEN, M.D., *Kansas City, Kansas*

Dr. Lynn Ketchum (Resident in Plastic Surgery): This 53-year-old Negro woman was admitted to the plastic surgery service on December 27, 1965, and discharged on January 8, 1966. Her chief complaint was a large 6 x 5 inch ulcerated tumefaction on the medial aspect of her upper left thigh. It had been previously biopsied with the diagnosis of mycosis fungoides, and she was admitted at this time for treatment.

Her disease was first recognized in 1962 when she was admitted to the medical service here for treatment of a bleeding duodenal ulcer. Approximately six papillary lesions roughly 1 cm. in diameter, some of which were ulcerated, were present on her trunk. One of these was biopsied and the diagnosis of mycosis fungoides was made. The lesions apparently completely regressed following radiation therapy.

In September of 1965 the lesion on the medial aspect of her left thigh was first noted. Its size at that time was not recorded, but it apparently grew to its present size in a relatively short period of time. This ulcer (*Figure 1*) was large, firm to palpation, grossly infected, very painful and had raised margins. An enlarged left inguinal lymph node was present, completely separate from the thigh lesion.

Medical Student: Was this mass fixed to the muscle below or was it all subcutaneous?

Dr. Ketchum: It was all subcutaneous.

Dr. Stanley Friesen (Surgeon): What else could this lesion be? Assume for the moment that we did not have the previous biopsy or that the previous biopsy might not have been correctly interpreted.

Dr. Ketchum: Squamous cell carcinoma and perhaps one of the venereal granulomas might present in this way.

Dr. Friesen: Which granulomas?

Medical Student: Lymphogranuloma venereum.

Dr. Friesen: Is that the same thing as lymphopathia venereum, Dr. Mantz?

Dr. Frank Mantz (Pathologist): Yes, they are synonymous, but clinically the lesions do not have the appearance of those observed in this case. In lymphopathia venereum there is a primary vesicular lesion



Figure 1: Ulcerated mycosis fungoides tumor on upper-inner aspect of left thigh.

which frequently is inapparent. Secondarily the regional lymph nodes become involved, hyperplastic, necrotic and may ulcerate as buboes. Sinus formation is prominent, but massive ulceration is rarely seen. In females, the process frequently involves the perirectal lymphatics causing a stenosing granulomatous inflammation which often produces rectal stenosis and lymphedema of the perineum. Multiple perineal sinuses may develop, leading into perirectal abscesses and creating what is commonly referred to as the watering-pot perineum.

Dr. Friesen: How about condyloma acuminatum? Does that ever look like this?

Dr. Mantz: It is generally an exophytic, arborescent, verrucoid lesion which rarely ulcerates.

Dr. Frank W. Masters (Plastic Surgeon): I think the one venereal disease which has not been mentioned but which could mimic the lesion in this patient is granuloma inguinale. To my knowledge, however, granuloma inguinale is usually bilateral. I suppose one ought to think also of Kaposi's sarcoma in this area, but this would be pretty rare.

Dr. Friesen: This would be rare in a Negro?

Dr. Mantz: Yes. This is most frequent in Italians and second most frequent, I believe, in Jews.

Dr. Friesen: Dr. Larsen, are there other lesions which you can think of that can be confused with this patient's lesion?

Dr. William E. Larsen (Hematologist): Any of the granulomatous infections involving the skin should be considered.

Dr. Friesen: How about tertiary syphilis with gumatous involvement of the skin? Does that occur in this region?

Dr. Mantz: There is a rare lesion of tertiary syphilis, I don't believe I ever seen anymore, called rupia. This does produce a lesion not unlike the one in this patient, but it is most frequently found in the pretibial area or in the lower extremities.

Dr. Friesen: What was this woman's serology?

Dr. Ketchum: Her serology was non-reactive.

Medical Student: What about leukemia cutis?

Dr. Larsen: Leukemia cutis would not usually take this form. The usual cutaneous lesions of leukemia are those of a chronic dermatitis (exfoliative) as seen in chronic lymphatic leukemia, or a nodular infiltrate of acute leukemia or lymphoma.

Dr. George Cowan (Radiotherapist): Has Framboesia been mentioned?

Dr. Mantz: If we want to wax romantic, I suppose Aleppo boil should be mentioned. This is a form of cutaneous leishmaniasis which produces a progressively spreading, large, indurated ulcer and is common among the Iraqi.

Dr. Friesen: Dr. Larsen, what other laboratory

examinations should be performed to help us in diagnosis or treatment of this condition?

Dr. Larsen: Biopsy, of course, would be the important consideration and this has been done. Peripheral blood and bone marrow studies are important to determine whether or not she has systemic spread of the disease. Also a Coombs' test would be important.

Dr. Friesen: Dr. Mantz, may we have the results of the biopsy of this lesion?

Dr. Mantz: First, I would like to say just a word about mycosis fungoides as the pathologist sees it. This is one of the reticuloendothelial disorders which is seen initially most frequently by the dermatologist. Usually, its onset is in the fifth decade of life and in its early phases has a rather indolent course. It usually presents as an erythematous form of dermatitis, often with a considerable degree of scaling. This pattern suggests poikiloderma, eczema, or similar skin disorders. If a skin biopsy is taken at this early stage of the disease, it may not be possible to make a specific diagnosis. These patients usually fail to respond to the therapy which is generally effective for chronic non-specific dermatitides, and in due course, the lesions become indurated and plaque-like. If a biopsy is taken at the indurated, or plaque stage, it frequently shows the specific changes of mycosis fungoides. Finally, the cutaneous plaques enlarge, become confluent and ulcerate to form the classical lesions of the tumor phase as we observe it now in this patient. There are many who feel that this lesion should not be dignified by a separate name and that it should be included among the cutaneous lymphosarcomas, reticulum cell sarcoma, or cutaneous Hodgkin's disease.

The first time we came in contact with this patient in our department was in 1962. At this time one of the lesions on her anterior abdominal wall was biopsied and showed what I believe to be rather characteristic changes. In the overall pattern of involvement, I believe we can point out the characteristic features of the plaque-like phase of mycosis fungoides. The epidermis shows superficial hyperkeratosis and a rather severe degree of acanthosis amounting to pseudoepitheliomatous hyperplasia. In addition, a dense infiltrate hugs the epidermis in a manner not unlike that seen in lichen planis. This infiltrate is confined for the most part to the superficial corium. Only a few nests of infiltrating cells are present in the middle dermis and none are present in the deep dermis.

At a higher magnification, more details can be seen which confirm the initial impressions. That the epithelial changes are indeed pseudoepitheliomatous hyperplasia is confirmed by the presence of edema of the epithelium, and exocytosis, or migration of inflammatory cells into the epithelium. In addition,

the dermal infiltrate is pleomorphic, and at the lower border of the infiltrate, the cells are arranged in moderately well defined masses. The most numerous cell is a large round cell which has a more or less monocytoïd appearance and which is interpreted by many as a tissue wandering cell, or tissue macrophage. We now see features which suggest that this infiltrate is malignant. It tends to be present around sweat glands and blood vessels, and it obliterates or destroys the normal tissue elements in these regions. In addition to the large number of monocytoïd cells, one sees large numbers of lymphocytes and moderate numbers of large cells with irregular hyperchromatic nuclei and prominent nucleoli. A higher power view of the latter shows distortion of the nuclear: cytoplasmic ratio, prominent nucleoli, ill-defined nuclear margins, and multilobular nuclei. These cells have come to be known as mycosis fungoides cells and are considered to be quite typical of this disorder. Their morphology suggests that they may be related to Dorothy Reed cells, but they are not sufficiently characteristic to be so classified. These cells are present in every case of mycosis fungoides which I have observed. Some mitoses are present, but they are not numerous. A final feature, which is considered diagnostic of mycosis fungoides by some people and which is not well shown in this biopsy, was originally described by the French dermatologist, Pautrier, as an intraepidermal cellular collection known as the Pautrier abscess. This consists of large collections of malignant mononuclear cells situated within the epidermis. They are in no way true abscesses, but rather represent malignant invasion of the epidermis. This constitutes the morphologic evidence on which the diagnosis of mycosis fungoides was initially made in this patient.

What course can one expect the disease to take when the lesions are in the plaque-stage as we have seen in this biopsy? The disease may continue in a very indolent fashion for a number of years. Often, however, the patients enter the third stage of the disease, the so-called tumor phase, with the formation of large masses which frequently have satellite lesions, ulcerate, and grow rapidly. I would presume that the large lesion which was present on this admission represented the tumor phase.

Dr. Friesen: Dr. Ketchum, how was this patient treated?

Dr. Ketchum: The entire mass was excised down through the fascia of the adductor group of muscles with a margin of approximately one inch around the edge of the lesion. We also removed the large inguinal lymph node, and it proved to be a benign lymph node with reactive hyperplasia. We resurfaced the large defect with a split thickness skin graft.

Dr. Friesen: Was any chemotherapeutic or antibiotic treatment employed?

Dr. Masters: Since the wound was obviously infected, we treated her with antibiotics.

I think it should be emphasized that in general, surgery is not the treatment of choice of mycosis fungoides, especially in the plaque phase. Radiotherapy is the treatment of choice. Surgery is used not in the hope of obtaining a cure, but merely for palliation. Although we mentioned a "margin" around the lesion, I am sure that we have not eradicated her disease.

This is the second lesion of this nature on which we have operated. The other lesion was also located on the thigh and was entirely similar to this one with the exception that it was surrounded by a erythematous scaly border. We operated on this lesion last August, first excising merely the ulcerated area. The pathology report indicated that the lesion had been incompletely excised so we reoperated and removed the erythematous scaly dermatitis, but again the pathology report indicated incomplete excision. Since our aim was not cure but merely palliation, we did not do any further surgery and grafted the area. The graft took well and there is no evidence of local recurrence to date. In my opinion, surgery should be used to treat only the large, painful, ulcerating masses which do not respond well to radiation therapy. For all other lesions, radiotherapy is the treatment of choice.

Dr. Friesen: Is there any reason to give preoperative irradiation?

Dr. Cowan: I think not. This is a generalized disease, and radiation therapy is essentially palliative. When the lesions are in the plaque phase and very superficial, they have been treated by radioactive phosphorus absorbed on blotting paper or in solid plastic applied locally. Once they get much thicker, as in this patient, more penetrating x-rays are required. With radiotherapy, many of these large tumor-phase lesions do resolve.

Dr. Friesen: If radiotherapy and surgery are both palliative, what is curative for this disease, Dr. Larsen?

Dr. Larsen: There is no cure for this disease. As with all lymphomas, treatment is aimed at palliation to minimize the disabling effects of the disease. Mycosis fungoides also responds to chemotherapy, but when it is localized as it is in this patient, radiotherapy is usually the treatment of choice. When the lesions do not respond to radiotherapy, chemotherapy is indicated.

Dr. Friesen: Are the lesions usually single or multiple?

Dr. Larsen: The lesions are usually multiple and

may cover the entire body, as a desquamative exfoliative dermatitis. When they do become nodular, the nodules may occur anywhere over the body, and vary considerably in their rate of growth.

Dr. David W. Robinson (Plastic Surgeon): I believe this woman had a lesion on her hand. Is that not correct, Dr. Ketchum?

Dr. Ketchum: Yes (*Figure 2*). It appeared to be in the plaque phase and was on the thenar eminence.

Dr. Cowan: This lesion disappeared following radiotherapy.

in the tumor, away from the area of inflammation and ulceration, we found a large number of the reticular type cells, but still moderate numbers of Langhan's type giant cells. The subcutaneous panniculus was invaded by an almost pure culture of malignant reticular elements and mycosis fungoides cells. At the edge of the ulcer the epidermis was invaded by tumor with the formation of typical Pautrier abscesses. A reticulum stain showed the abundant production or presence of reticulum in a disordered pattern, characteristic of malignant lymphomas, but most typical of a reticulum cell sarcoma. Many of the cells seemed to hang from the reticulum by a cytoplasmic process and it appeared as if reticulum was being produced by the tumor itself.

We have seen in this patient then, lesions both in the plaque phase and in the tumor phase of mycosis fungoides. I suspect from the monomorphous appearance of the infiltrate comprising the majority of the tumor from the thigh that the lesion may be undergoing metamorphosis to a reticulum cell sarcoma of more or less conventional variety.

We should ask ourselves what can be expected in a patient who has proceeded to this phase of the disease. She may go on for years developing cutaneous lesions, probably of the tumor variety. Ultimately, however, in most instances the disease becomes systemic with involvement of the parenchymatous organs. Lymph nodes are the most frequently involved. Liver and spleen are next most frequently involved and other viscera may also be involved, just as in any lymphomatous process. The prognosis remains relatively good until such time as systemic involvement occurs, but when systemic involvement appears, approximately 64 per cent of the patients are dead within three years.

Dr. Robinson: What, on the average, is the time from onset to demise, Dr. Mantz?

Dr. Mantz: It is unpredictable. These patients may go for 15 years before developing systemic involvement, or systemic involvement may occur early with death within two or three years.

Dr. Friesen: Is it true that the visceral lesions probably represent multicentric origins rather than metastases?

Dr. Mantz: There is disagreement over this point. I feel, however, that it represents multicentric origins. I think it was important in this case to examine the inguinal lymph node to exclude the possibility of systemic involvement. The lymph node, as would be expected in a site draining such a large, ulcerating, infected lesion, showed reactive hyperplasia. There was no evidence of neoplastic involvement of the lymph node.

(Continued on page 386)



Figure 2: Plaque lesion of mycosis fungoides on the left hand.

Dr. Friesen: Dr. Mantz, would you tell us about the pathology of the lesion excised from the thigh?

Dr. Mantz: The specimen we received was an ellipse of skin measuring 22 cm. in its greatest diameter, and containing a large ulcerating, penetrating lesion measuring 12 cm. in greatest diameter. This was not a single lesion at all but rather represented confluence of two separate lesions. Two separate satellite nodules were also present. The ulceration probably resulted from compression atrophy of the overlying epidermis. A section from the margin of one of the ulcers showed the same degree of pseudoepitheliomatous hyperplasia as was present in the initial biopsy with exocytosis of the malignant cells into the epidermis. The lesion extended broadly beyond the margin of the ulcers, as Dr. Masters has already pointed out. The base of the ulcer was composed of chronically inflamed granulation type tissue with numerous blood vessels, much necrosis, and some hemorrhage. A surprising finding was the presence of large numbers of multinucleate giant cells of both Langhan's and foreign-body types. A careful search with special stains for organisms which might produce such changes failed to reveal any, and a closer look at the giant cells revealed nuclear abnormalities which indicated that they are indeed a part of the malignant lymphomatous process. Deeper

The President's Message

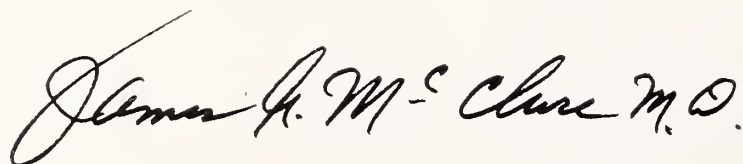
DEAR DOCTOR:

The medical assistant is the first point of contact the patient has with the physician. Her value to the successful physician-patient relationship is obvious. She is essential to the efficiency of scheduling and office procedures. It follows logically, therefore, that anything we can do to improve her services is a sound investment.

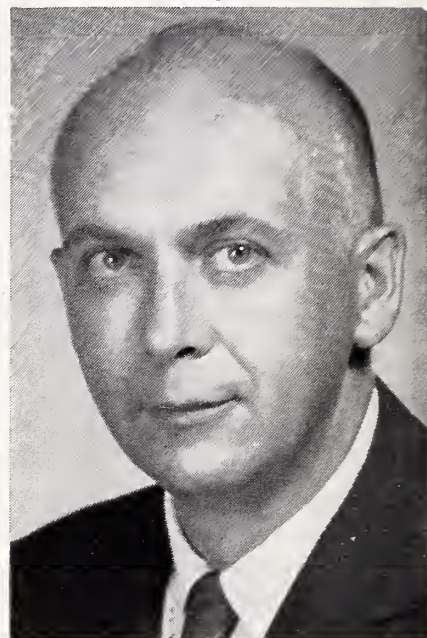
This year the Kansas Medical Society is jointly sponsoring circuit courses with the Kansas Medical Assistants Society. These will be two-day courses on Saturday and Sunday—July 30-31, Dodge City; August 20-21, Topeka; September 24-25, Wichita; and October 1-2, Parsons. This year the Saturday lectures will relate to medical specialties and their services. The Sunday meeting is devoted to Medicare.

It is our conviction that the program will be of value to every medical assistant and therefore reflect in improved operations in your practice. It is our hope every member of this Society will not only authorize a representative, or more, from his office to attend one of these sessions, but that he will request her to go and help defray her expenses. You will be surprised when you discover the reduction in the cost for this year's circuit course.

Very truly yours,

A handwritten signature in cursive script that reads "James H. McClure M.D.".

President





Editorial COMMENT

Coroner Cases

Kansas Statutes require the physician in attendance to notify the coroner when a person dies by violence, suicide, casualty, when in apparent good health or when unattended by a physician. This includes, by way of example, the private patient who dies in a hospital even weeks after an automobile accident or from any trauma.

Some physicians incorrectly reason that their private patients who die from causes obviously related to an injury are not subject to coroner investigation. Others, considering the coroner's duty to determine the cause of death, merely neglect to report cases where the cause is not questioned.

The Kansas law does not allow for such distinction nor is the attending physician's judgment admitted. The simple fact is that deaths involving the above listed conditions are to be reported and failure to do so may invite liability from any of several sources.

A more sophisticated answer is that the cause of death involves more than vital statistics. Insurance is often involved. The experienced coroner may determine evidence, about which the attending physician might have little curiosity, which could make large differences, even reversals, when insurance claims are settled.

There is much a coroner might do, but even if his service adds nothing whatever to knowledge in the cause of death, failure to notify the coroner, where the law requires this to be done, can be a disservice to the family and a source of considerable grief to the physician.

Therefore, this explanation is offered as a service to the medical profession. All deaths resulting from trauma, however long after the occasion death occurs, are coroner cases. His report shall appear on the certificate of death. The attending physician is obligated, under the law, to notify the coroner, and he

should do this immediately. The attending physician is given no other choice. Nor can the coroner elect to do other than assume responsibility for officially declaring the cause of death. It is the law.

The Tornado

At about 7:15 p.m. on Wednesday, June 8, the tornado touched down at the extreme southwest edge of Topeka, travelled on the ground twelve miles across the diagonal center of the city and out through the airport at the northeast corner.

The cloud was low, the funnel short and exceptionally broad, cutting a swath four blocks in width at places.

The tornado's first target were some of Topeka's finest apartment complexes. Every unit was demolished. Next a new housing development levelled. Then Washburn, a municipal university of 5,000 students, was struck leaving almost every building damaged, some a pile of stones. The first damage estimate for Washburn University was ten million dollars.

Next a shopping area was ruined. Then block after block of older houses, some collapsed, others exploded. Topeka is a city of elm trees. In the storm's path these were uprooted, splintered, thrown against houses and cars.

The State House dome was damaged but the all glass State Office building almost untouched. Then the tornado reached 10th Street and Kansas Avenue in the heart of the business district. Every structure over a two block width was damaged or destroyed. A ten story office building, with every window blown out, shifted on its foundation and will be razed.

Then in its path a string of automobile dealers were hit and their property destroyed. Next several miles of ruined homes and small businesses after

which the funnel roared across the airport and out of the city leaving a million dollars of destroyed aircraft.

In all, 3,200 buildings were damaged or destroyed. Utilities were out, power lines on the ground. And yet there were only 17 deaths of which three were the result of heart attacks and not wind damage. Topeka physicians immediately went to the hospitals and many came from nearby cities. They had little to do. There were few injuries and most of these were slight. The massive property damage and the few injuries restore one's faith in miracles. Certainly, the prompt and efficient reporting by radio and television is largely responsible.

Now for some personal notes. It is not yet known how many Topeka doctors suffered property damage. Probably not many were affected. The personnel of the Executive Office did not fare as well. Four of the six employees at this Society experienced varying degrees of loss.

Pat Morse and Oliver E. Ebel had near misses but no damage. Swede Swenson moved to a new home three months ago. He lost windows, had a damaged garage and car windows broken. His neighbor's home was destroyed. Velma White had broken windows, a heavily damaged roof, a destroyed garage and uprooted trees. Val Braun's front wall was blown out and there was car damage. Mary Rogers' new, brick four-apartment home was levelled. She lost her car and all personal belongings, clothing, furniture, everything. But no one was hurt.

This office is some six blocks from the path of the storm and was not touched. The Blue Cross-Blue Shield building lost most of the windows on the north side and there was some interior damage. The hospitals generally escaped harm. One large nursing home was extensively wrecked but the warnings prevented serious injuries.

Clean up efforts are producing visible results. Most of the trees have been removed. Streets are cleared of debris and traffic is moving again. It was a disaster but already people are beginning to plan for the future, talking about rebuilding their homes and their businesses. The calm heroism of all these people is remarkable.

Tumor Conference

(Continued from page 383)

Occasionally, these patients die before systemic involvement develops. We have seen at least two individuals who have died because of great emaciation secondary to the tumor-like masses and in which secondary infection had occurred.

Medical Student: What is the evidence that the secondary visceral involvement represents multiple primaries rather than metastases?

Dr. Mantz: There is no absolute or real evidence. However, their predilection for occurrence around blood vessels where reticular tissue is normally found suggests that they may be local proliferates.

Medical Student: How is mycosis fungoides distinguished from the other lymphomas if they may also involve the skin?

Dr. Mantz: From the pathologist's standpoint, the diagnosis is made on the nature of the malignant infiltrate. The other lymphomas, with the exception of Hodgkin's disease, are composed of a monomorphous infiltrate, that is an infiltrate which consists of one rather monotonous cell type. The infiltrate in mycosis fungoides, however, is polymorphous (contains more than one cell type) and contains the fairly characteristic mycosis fungoides cells which I have described and illustrated to you earlier. In addition, Pautrier abscesses are seen in mycosis fungoides but not in the other lymphomas.

Dr. Larsen: I would like to re-emphasize the point Dr. Mantz made earlier that in the early phase of the disease, the presentation is that of a chronic non-specific dermatitis which cannot be distinguished clinically or histologically from a chronic dermatitis of non-malignant origin.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

John W. Beeks, M.D.
115 N. Cooper
Olathe, Kansas

Donald G. Moreland, M.D.
1301 N. West
Wichita, Kansas

Norman W. Berkley, M.D.
15 S. 5th Street
Seneca, Kansas

Fred F. Roberts, M.D.
3244 E. Douglas
Wichita, Kansas

S. J. Farha, M.D.
959 N. Emporia
Wichita, Kansas

Joseph P. Schaefer, M.D.
7301 Mission Road
Shawnee Mission, Kansas

Wilks O. Hiatt, Jr., M.D.
K.U. Medical Center
Kansas City, Kansas

Willard J. Smith, Jr., M.D.
427 N. Hillside
Wichita, Kansas

F. Albert Kunkle, M.D.
3333 E. Central
Wichita, Kansas

Official Proceedings

Report of the 1966 Meeting of the House of Delegates

The transactions of the 107th Annual Session are published in this issue of the JOURNAL.

Resolutions were introduced at the first House of Delegates meeting. All resolutions, except No. 9 which was adopted at the first meeting, were referred to the Reference Committees. All resolutions appear in the minutes of the second House of Delegates as they were adopted. Resolutions failing to pass are retained in the minutes at the executive office, but are not recorded here.

First Session

The first session of the House of Delegates was held at the Lassen Hotel, Wichita, Kansas, beginning with a breakfast at 7:30 a.m. on Monday, May 2, 1966.

By authority given to him by the House of Delegates, Dr. George Burket, Jr., President, appointed Dr. Thomas F. Taylor, Phillipsburg, and Dr. J. Walker Butin, Wichita, as speaker and vice speaker.

Dr. Taylor then called the meeting of the House of Delegates to order and announced the appointment of two reference committees as follows:

Reference Committee No. 1: Dr. John L. Morgan, chairman; Drs. H. W. Hiesterman, J. F. Lance, Jr., and J. G. Phipps.

Reference Committee No. 2: Dr. William R. Roy, chairman; Drs. W. R. Lentz, J. Warren Manley, Vale O. Page, and E. R. Williams.

The primary election was held for the office of second vice president. For the first time nominations were taken from the floor for the offices of speaker and vice speaker of the House of Delegates. The election of officers for all positions will be held at the second House of Delegates meeting.

Dr. Leland Speer, chairman of the Committee on Reports, introduced the resolutions arising from the reports of the officers, councilors and committees.

The Speaker asked the Executive Director for his annual report to the House of Delegates. Mr. Ebel read a report which appears in the official minutes filed in the executive office.

The Speaker then called upon Mrs. E. Burke Scagnelli, president of the Woman's Auxiliary who made a report of the activities of the Auxiliary during the past year.

In the absence of the Treasurer, Dr. John L. Latti-

more, his report was read by the Executive Director, on the basis of the audit recently completed for the period May 1 through December 31, 1965.

REPORT OF THE CONSTITUTIONAL SECRETARY

Following is a summary of the Membership of the Kansas Medical Society for 1966, presented by the Secretary, Dr. Leland Speer.

Dues-Paid Members	1,403
Honorary Members	153
Emeritus Members	9
Leave-of-Absence Members	46
In-Service Members	6
Delinquent Members	267
	<hr/>
	1,884

The membership in 1965 was 1,883. The 1966 membership represents an increase of one member.

SPECIAL REPORTS

(Presented at the first House of Delegates meeting.)

The Editor

As I have told you in other years, the credit for the monthly appearance of the JOURNAL is due many people, and it is on this occasion that I have the opportunity to publicly express my appreciation to all of them for making it look as though your editor was "putting out" a JOURNAL. Certainly much appreciation is due to Mrs. Mary Rogers, for her untiring, uncompaining and patient work with all the necessary details of publication; to Mr. Oliver Ebel for editorial contributions and for selecting and extracting the material for publication from all of that received from the AMA and other sources, and for his general helping hand; to Dr. Jesse D. Rising for soliciting and editing much of the material received from the University of Kansas Medical Center; and to the individuals who served as editors for our special issues—Dr. Roy W. Menninger for the January issue on psychiatric subjects; Dr. Frederick Speer for the February issue devoted to allergic problems; Dr. D. V. Preheim and his committee for the Geriatrics issue in June; and Dr. Newman V. Treger for the November issue including papers from the American College of Physicians—and to all who have sent us

material for publication. Without all of these there would have been no JOURNAL.

I want to particularly thank the members of the Editorial Board for their work, done, as in the case with all Society officers, without compensation other than the satisfaction of accomplishment, but perhaps, for some, over a longer period of time than some others who do Society work. For your information, the Board includes Dr. John A. Segerson, a member since 1956; Dr. David E. Gray since 1952; Dr. Richard Greer since 1949; and Dr. Dwight Lawson since 1946. The terms of Drs. Gray and Lawson expire at this meeting, and Dr. Lawson, after 20 years with the Board, has requested that he not be reappointed on the expiration of his present term. We have all enjoyed working with him, and have learned to value his opinions and his contributions, and would like to have him continue, but I cannot do other than to comply with his request, at the same time expressing special appreciation for his long and faithful service. It will be the duty of the Council to fill these vacancies on the Board.

During 1965 the JOURNAL published 68 original articles of a scientific nature, three on the History of Medicine, six Student Theses, five Clinical Pathological Conferences, and five Tumor Conferences, which, with the various announcements, reports, etc., totalled 568 pages—a little less than in 1964. Included in the year were six special issues which the Board is particularly pleased to present. These are usually somewhat larger than the regular issues of the JOURNAL, and they have been received with considerable enthusiasm.

In the current year there will be five special issues, of which three have already appeared. We are also pleased to present a new series of articles of historical significance, started in the current issue with the account of the life of Dr. Simeon B. Bell, the original benefactor of Bell Memorial Hospital and the Medical School of the University of Kansas, written while he was a student at KUMC, by Dr. Robert H. Chesky, a nephew of our former member, Dr. Victor Chesky, of Halstead. To follow, beginning in the May issue, will be a documentation of experiences in the early days of the Medical School at Kansas University, written by Dr. Ralph Major, and presented serially over a period of approximately a year. I believe that you will find these interesting reading.

I could not give my annual report without the usual request for good papers from any or all of you. The more papers from which we can choose, the better the JOURNAL can be. I would appeal especially, as I have before, for submission of short case reports of interesting cases. These do not require extensive bibliographies or literary research, but can be inter-

esting to many of your confreres, and we would be delighted to have more of them.

Last year I reported on our finances, and requested and received from the House of Delegates, a vote of confidence for the Editorial Board, with a "green light" to seek more local advertising through an advertising agency. It seems as though I should now be able to give you a report on our success in this venture, but the wheels of accomplishment turn slowly, and it was not as simple as we had thought to arrange for this through an agency. Efforts have been made throughout the year to get something started, but we are only now approaching the stage when plans for mailings and solicitations are in a more or less concrete form, with promise ahead. It is my fervent hope that some results may soon become evident, but at this time I cannot report to you on the success of this type of advertising, nor tell you how much it will do to restore the JOURNAL to fiscal responsibility.

During the past year our expenses exceeded our income by about \$5,500—a little improvement over the preceding year, but not what we would like to tell you. For a government project I presume this would be a sign of prosperity, but we feel differently about it.

It is interesting to note again that in spite of the general increase in prices and wages, the production costs of the JOURNAL have had only minor fluctuations during the last five years, with no general upward trend, in spite of a modest increase in the number of published pages. The deficit is caused solely by a decrease in the advertising income, and as I have told you before, this is nothing peculiar to the JOURNAL OF THE KANSAS MEDICAL SOCIETY, but is an effect noticed by most journals—certainly the state journals. You do know that we have some reserves from previous years, which can carry us over a few lean years, and these reserves, invested since 1962, have earned something over \$2,900 in dividends, which is some help.

The future is still something of a question mark, and much will depend upon the expressions of the wishes of Society members as to what is desired. There is more and more pressure put on us by the Bureau (State Medical Journal Advertising Bureau) to mix advertisements and text material through the JOURNAL, in order to attract more advertising, and it is a fact that a majority of the state journals have yielded to this urging. In my present mail are two more proposed "plans" for additional ads on this basis—which as yet are not answered.

This interspersing of advertisements and text material can be of different degrees: some keep the scientific section strictly free of ads, but mix other features

through advertising pages; some intersperse ads throughout the magazine such as is done in *Medical Economics* or *Medical World News*; and some—now a small number, of which we are one—have advertisements in the front and back of the book, but have none mixed in with the text material. Some are also selling advertising space on the front cover.

This trend and the repeated urging by the Bureau, is disappointing and disturbing to me, for during the first ten years of my term as your editor all the meetings sponsored by the Bureau emphasized improvement of the appearance, the format, the style, the arrangement and the text material, and avoiding an excessive ratio of advertising pages to text pages. Now, in the past five years or so, there has been a reversal, with the plea to scrap these changes, which we thought were improvements (and I still do), and to compromise the appearance, availability, readability, and arrangement, in order to lure more advertising to the JOURNAL. It is prompted, of course, by the desire to make the journals self-supporting, without subsidy from the parent societies.

I accept it as a fact that it is desirable to have state journals pay for themselves, and that with more advertising it would make it possible to come closer to being "in the black," but would it make it the kind of a magazine that you want to read? Is it better to make it pay its own way, regardless of the appearance, the difficulty in finding and following features which you want to read, and having to turn several advertising pages in the course of reading an article, or should we continue to strive to make it the best JOURNAL we can with the material available, even at the sacrifice of some additional cost? In the editorial meetings sponsored by the Bureau we repeatedly hear of the large amount of advertising obtained by such magazines as *Medical Economics*, *Medical World News*, *M.D.*, and others. A large circulation, and the interspersing of ads and text are the drawing points for the advertisers, on the basis of the "cost per reader," but we hear no estimate of what percentage of these magazines are read, or more specifically in what percentage the ads are read, and my suspicion is that it is far lower than supposed. Obviously the magazines are paying, for they are sent to all of us without charge, but how many of all those ads in the so-called "throw away" journals do *you* read, and how many persuade you to use the product advertised?

Unless we are directed otherwise, the members of the Editorial Board feel that we should continue to try to improve the quality of the JOURNAL and its appearance as much as possible with the material available, even though this may mean a continuing deficit of some degree in current income as related to current production costs; that such deficits can be

restored from our reserves on hand; and that if these reserves become exhausted the time will have arrived when a decision is required as to whether the subsidy of the Society should be increased over the present \$2 per member, or the status of the JOURNAL be compromised. We would like, first, to make the JOURNAL worth your reading, and hope that if it is of that quality, you will be willing to contribute some additional dollars from the Society treasury if needed to keep it so.

ORVILLE R. CLARK, M.D., *Editor*

Kansas Blue Shield

It is a privilege to make this annual report to Blue Shield's sponsoring organization. Twenty years ago, with \$10,000 advanced by the Kansas Medical Society, Blue Shield began its problem-packed history. One hundred dedicated members of the Society have served on its Board of Directors. And I am honored to be their 11th president. Much has happened since the report made to you a year ago by my dedicated predecessor, Burke Scagnelli.

We have implemented our agreement with the Kansas State Dental Association to underwrite pre-paid dental services.

We have reached, subject to approval by this House, an accord with the Kansas State Osteopathic Association with respect to payments to their members who are licensed under the Kansas State Board of Healing Arts.

We have passed the 600,000 membership mark so that, counting citizens of Wyandotte and Johnson counties who subscribe to Kansas City Blue Shield, one out of three Kansans is enrolled.

With respect to the Deferred Compensation Plan, we have not yet succeeded in securing a ruling from the Internal Revenue Service. If the ruling, which is expected in the near future, should be unfavorable we will take the matter to the Society's Committee on Medical Economics to consider what further steps—if any—Blue Shield should undertake.

The most absorbing activity has been a continuing development of the Prevailing Charges Program. It had been our plan to announce to you today that the Program would be initiated on July 1, the effective date of Medicare. Although fee registrations have been returned by over 85 per cent of the physicians we still have a number of details to finish. We expect to implement the Program beginning October 1.

The outstanding event has been our selection, with the Society's support, as carrier under Part B of the Medicare Law. We are hiring staff, purchasing equipment and enlarging workspace so that we should be ready for July 1. Meanwhile we will soon be negotiating with representatives of the Social Security Ad-

ministration the terms of the contract between the Secretary of the Department of Health, Education and Welfare, and Kansas Blue Shield.

The fact that we started working on the Prevailing Charge Program long before the Medicare Law passed, and the fact that we will have registrations from nearly all physicians in Kansas, puts Kansas Blue Shield in a favorable position to administer the benefits of Medicare equitably for the government, the physicians and the beneficiaries.

The registrations automatically give us the current ranges of fees in Kansas and we will propose that the Social Security Administration accept the fees charged by 90 per cent of the physicians as maximums. This will satisfy one test in the fee determination process—that the fee be in line with prevailing fees in the area.

However, in regard to the other test, that is whether the fee being charged is the individual doctor's customary fee, we will need to get the written consent of each participating physician to use his registration.

Thus, we may use the broad information in the registrations to establish the ranges but we will need written consent to apply each doctor's registration to his own medical cases.

If written consent is not given, or if a physician has made no registration, our only alternative is to go back to our own data developed in the past from charge information submitted on Blue Shield claims.

The emphasis in this report has been on Blue Shield's opportunity to serve medicine in the administration of Title XVIII of the Medicare Law. However, at every turn we hear and read that Title XIX has more long-range significance for our profession. We are encouraged by the prospect that Title XIX programs may not have to be administered by the Kansas State Board of Social Welfare.

Just as we have placed our services at the disposal of the Medical Society of Sedgwick County in carrying out a program of federally financed examinations of certain school children in Wichita, so we repeat our willingness to be of whatever service we can to the Kansas Medical Society in the administration of future programs under Title XIX of the Social Security Act.

With bigger government programs the order of the day, Blue Shield is ready to play a dual role—that of an agency uniquely suited to assist medicine, government and beneficiaries in an equitable administration of public programs as well as the most effective instrument for financing medical services to your private-pay patients.

In conclusion, our continuing capability for service under Medicare and other public laws presupposes that we will remain a strong organization in the market place. The fact of Blue Shield's involvement in any government program might prompt some physicians to quit us. That would weaken Blue Shield. Cancellations by subscribers who fail to understand

the increase in rates necessary for full payment of Prevailing Charges would weaken us. Any such loss could be made up only by enrollment of new subscribers.

So, we urge every physician who shares our interest in containing future government programs to take every opportunity for strengthening Blue Shield's position in the remaining private sectors of the market, particularly through the enrollment of employee groups.

ROBERT K. PURVES, M.D., *President*

The Speaker called upon Mr. R. G. "Swede" Swenson who reported on KaMPAC in the absence of its president. He stated that KaMPAC would be a success if 3,000 memberships could be obtained through the Society and the Auxiliary and called attention to Resolution No. 42.

Dr. John L. Morgan then asked for permission for the floor and made the following statement:

I wish to commend Oliver for his thoughtful and beautifully worded report as Executive Director, and recommend to the Editorial Board of the JOURNAL OF THE KANSAS MEDICAL SOCIETY that those portions of his report which would bear public scrutiny be considered for publication, and if done, I predict that it will be widely quoted.

This was approved by the Action of the House.

Dr. Burket explained some of the things that would happen in the future that the Society would have to consider. (1) the implementation of Title XIX, under PL 89-97, (2) the public health survey by the Legislative Council; (3) to assure the smooth implementation of the prevailing fee under Blue Shield; (4) the project conducted by the Committee on Plans and Scope to revise the By-Laws; (5) the Society must consider in the near future an increase in dues; (6) the physicians in Kansas must support KaMPAC.

Second Session

The second session of the House of Delegates convened at the Lassen Hotel, Wichita, on Thursday, May 5, 1966, at 9:00 a.m.

Dr. Thomas F. Taylor, Speaker, called the session to order and ballots were distributed for the election of all Society officers.

Dr. George Burket, Jr., announced that certificates had been sent to the Society for two physicians who served as volunteer specialists in Vietnam. These certificates were for W. G. Parker, M.D., Oberlin, Kansas, General Practice, Served 12/65-2/66, and Isle Heilbrunn, M.D., Prairie Village, Kansas, Microbiology, Served 1/66-3/66.

The tellers reported the results of the election as follows:

PRESIDENT-ELECT: George F. Gsell, M.D., Wichita

FIRST VICE PRESIDENT: John L. Morgan, M.D., Emporia

SECOND VICE PRESIDENT: Leland Speer, M.D., Kansas City

CONSTITUTIONAL SECRETARY: Francis T. Collins, M.D., Topeka

TREASURER: John L. Lattimore, M.D., Topeka

AMA DELEGATE: Lucien R. Pyle, M.D., Topeka

ALTERNATE AMA DELEGATE: J. Warren Manley, M.D., Kansas City

SPEAKER: Thomas F. Taylor, M.D., Phillipsburg

VICE SPEAKER: J. Walker Butin, M.D., Wichita

The caucus of the Council districts announced the selection of the following to serve as councilors from their respective districts:

District No. 1: Virgil E. Brown, M.D., Sabetha

District No. 3: Dan L. Berger, M.D., Shawnee Mission

District No. 4: William G. Rinehart, M.D., Pittsburg

District No. 5: Alex Scott, M.D., Junction City

District No. 8: Bruce G. Smith, M.D., Arkansas City

District No. 9: Spencer C. McCrae, M.D., Salina

District No. 17: James A. Barnard, M.D., Garden City

District No. 18: Robert W. Hughes, M.D., Lawrence

The results of the election of the Nominating Committee were reported as follows: Dr. Thomas P. Butcher, Emporia, Chairman; Drs. Norton L. Francis, Wichita; Laurence S. Nelson, Salina; H. St. Clair O'Donnell, Ellsworth; and Glenn R. Peters, Kansas City.

RESOLUTION NO. 1

Expression of Gratitude

WHEREAS, The reports of officers, councilors and committees show evidence of much effort in behalf of the Kansas Medical Society; therefore

Be It Resolved, That the House of Delegates express its gratitude to George E. Burket, Jr., M.D., the President, for his exceptional leadership; to the Executive Committee, the Council, the Committee Chairmen and all members who contributed toward the work of this Society in the past year; and

Be It Further Resolved, That the reports be approved and adopted.

RESOLUTION NO. 2

Local Society Representatives for Nursing Homes

WHEREAS, Adequate care of patients in nursing homes requires the interest of physicians and their active participation in the establishment of pro-

fessional standards of care given within nursing homes; and

WHEREAS, The Committee on Aging will continue to work with the Kansas Nursing Home Association, but to be effective local relationships between practicing physicians and nursing home operators is necessary; therefore

Be It Resolved, That the House of Delegates recommend that each component medical society within this state appoint a committee or a representative to serve as a channel of communication between the local medical society and nursing home operators within the area.

RESOLUTION NO. 3

Nursing Home Participation in KHFIS

WHEREAS, Health facility planning on a voluntary basis has the approval of the Kansas Medical Society by previous action of the House of Delegates; and

WHEREAS, This activity includes planning of nursing homes as a significant community health facility; therefore

Be It Resolved, That the Kansas Medical Society recommend to the Kansas Health Facility Information Service that they consider submitting an invitation to the Kansas Nursing Home Association to actively participate in its activities on a state-wide basis; and

Be It Further Resolved, That nursing home operators be encouraged to participate in voluntary health facility planning as may be conducted at a local level within this state.

RESOLUTION NO. 4

One and Two Bed Adult Care Nursing Homes

Resolution No. 4 was not adopted.

RESOLUTION NO. 5

Extension of Osteopathic Involvement Within Blue Shield Programs

WHEREAS, A segment of Kansas Blue Shield members presently secure services from Doctors of Osteopathy which are covered within the scope of benefits of Blue Shield programs; and

WHEREAS, One of the primary concepts of the Prevailing Charge Plan is that Blue Shield will provide benefits for covered services according to confidentially registered charges by physicians and other providers of medical/surgical care; and

WHEREAS, The securement of charge registrations from Doctors of Osteopathy is not readily possible through existing Blue Shield-Osteopathic relationships; and

WHEREAS, Present business arrangements between Blue Shield and the Osteopathic Profession make it

difficult for the subscribing public to be assured of expeditious benefit provisions in some instances, and

WHEREAS, Blue Shield has succeeded in developing a method which overcomes similar problems which in the past had been encountered in providing benefits for services rendered by members of other Professions, and

WHEREAS, It would be in the best interest of the subscribing public as well as serving common goals of Blue Shield and the Medical Profession if a closer identification between Blue Shield and the Osteopathic Profession might be engendered; therefore,

Be It Resolved, That Kansas Blue Shield be permitted to enter into an agreement with the Kansas State Osteopathic Association which would provide for direct payment for covered services to Osteopathic Physicians, who are members of the Kansas State Osteopathic Association and are licensed to practice medicine and surgery under the State Board of Healing Arts, without the need for direct Participating Physician's Agreements with such physicians.

RESOLUTION NO. 6

Tuberculin Testing

Be It Resolved, That this committee recommends that results of positive tuberculin testing in the public schools be reported and reportable by responsible school offices to the local and state public health departments, as well as to the patient's private physician, if any, in a manner similar to that now being used in reporting results of photofluorographic x-ray surveys.

RESOLUTION NO. 7

Speaker and Vice Speaker of the House of Delegates

WHEREAS, The House of Delegates authorized amendments to the By-Laws whereby a Speaker and Vice Speaker of the House of Delegates would be elected at the 1966 Annual Session; therefore

Be It Resolved, That the By-Laws be amended in CHAPTER VII—DUTIES OF OFFICERS—Section 1 by deleting in the third sentence the words "and the presiding officer" so this sentence shall read "He shall in accordance with these By-Laws appoint all committees except as is otherwise provided, and in addition to being a member of the House of Delegates and the Council, shall be an ex officio member of all Committees and Boards."

and that the remainder of this section shall be retained.

CHAPTER VII—DUTIES OF OFFICERS—Section 3 relating to the duties of the first vice president, by deleting the words "the House of Delegates" so this

sentence shall read "The first vice president shall assist the president in the performance of his duties; shall preside in his absence at the meetings of this Society, or the Council; shall represent the president at regular meetings, committee meetings, or other functions; and in the event of the death, resignation or removal of the president, shall immediately succeed to that office for the remainder of the term."

and that the remainder of this section shall be retained.

CHAPTER V—HOUSE OF DELEGATES—

Section 8

Item 2 be amended to delete the word "President" and insert in its place the word "Speaker."

CHAPTER V—HOUSE OF DELEGATES—

Section 8

by inserting a new Item 5 to read—

"5. Nominations from the floor for the office of Speaker and Vice Speaker of the House of Delegates and a ballot vote where three or more candidates have been nominated for one office so that the election at the final session of the House of Delegates shall present not more than two candidates for each office."

and to renumber the remaining items in consecutive order.

CHAPTER V—HOUSE OF DELEGATES—

Section 9

Item 2 by deleting the word "President" and inserting in its place the word "Speaker."

CHAPTER V—HOUSE OF DELEGATES—

Section 9

by inserting a new Item 4 and a new Item 5 to read:

"4. Election by ballot of the Nominating Committee."

"5. Election by ballot of the Speaker and Vice Speaker."

and to renumber the remaining items in consecutive order.

CHAPTER V—HOUSE OF DELEGATES

by inserting a new section 7 to read as follows:

"Section 7—The House of Delegates shall annually elect from its membership a speaker and a vice speaker whose terms of office begin upon adjournment of the last session of the House of Delegates and continue through adjournment of the last session of the House of Delegates at the next Annual Session. They are eligible for succession, and this is recommended for such periods as their interest is maintained and their efforts continue to the satisfaction of the House of Delegates."

The Speaker is the presiding officer over all sessions of the House of Delegates. It is his duty upon consultation with the Vice Speaker to appoint reference committees as required in the By-Laws. He shall refer resolutions introduced into the House to reference committees and shall aid delegates and committees to the extent of his ability toward the end that all business of the House may be conducted in an efficient manner and with all possible consideration for delegates and guests.

In the absence of the Speaker or at his pleasure, the Vice Speaker will preside over the House of Delegates and will perform such duties as would otherwise be performed by the Speaker.

The Speaker and Vice Speaker are officers of the House of Delegates but because their responsibilities are closely affiliated to the work of the Society, each shall become an ex officio member of the Council. They will be invited to attend all Council meetings and will receive such communications as are sent to the Council.

At the first session of the House of Delegates, nominations shall be placed for the office of speaker and for the office of vice speaker. In the event there are more than two nominations for either office, a primary ballot shall be taken and the names of the two candidates receiving the largest number of votes will appear on the ballot at the last session of the House of Delegates where the election shall take place."

and the remaining sections shall be renumbered in consecutive order.

RESOLUTION NO. 8

Committee Structure

PREAMBLE

Committee structure is the foundation of society progress. Almost every innovation arises from committee effort. Thousands of man hours are annually contributed by members whose purpose is almost without exception to provide a higher quality of health care to all persons at maximum efficiency.

Society leadership is born from experience gained in committee work. It is at this point where the individual physician acquires his first contact with his state society. Therefore, every consideration must be given toward retaining this opportunity.

Committees often have been created to dispose of situations and thereafter interest in the subject has been abandoned although the committee continues to exist at least on paper. Some 55 dangling committees hang loosely bound to the organization of this Society.

This proposed change arises from three years of consideration by the Committee on Plans and Scope

on how the opportunity for membership participation may be maintained and strengthened by constructing a chain of command to assure that Committee voice will be heard.

Committees will continue in every important area of activity. Their ideas will receive additional scrutiny not afforded at present by the Council and the House of Delegates.

WHEREAS, The Kansas Medical Society now has fifty-six (56) duly appointed committees in which some appear to have overlapping responsibility and some have little responsibility whatever; and

WHEREAS, The Committee on Plans and Scope after reviewing the Constitution and By-Laws of almost every state medical society in the nation, finds the majority are coordinating committee activity through the formation of a small number of commissions which have authority to appoint committees for the performance of specific assignments; and

WHEREAS, The Committee on Plans and Scope recommends this procedure be adopted by this Society for the purpose of improving the efficiency of committee function; therefore

Be It Resolved, That the By-Laws be amended by deleting all of Chapter XI, Committees, and that the following be inserted:

CHAPTER XI—COMMITTEES

Section 1. Regularly appointed committees of the Society shall be of five (5) classes:

1. Elected committees
2. Commissions
3. Reference committees for the House of Delegates
4. Advisory committees
5. Special committees

Section 2. Elected committees shall be the Executive Committee, the Editorial Board of the JOURNAL, the Defense Board, the Nominating Committee, the Committee on Public Policy, and such others as are elected or appointed by the House of Delegates or the Council and thereby are responsible directly to the body under whose authority they exist unless otherwise specified in these By-Laws.

Section 3. Each COMMISSION shall consist of 18 members appointed for a term of two years, except in 1966 when nine (9) shall be appointed for a one-year term, and nine for a two-year term. In addition there shall be appointed a chairman of each commission for a term of one year, who shall be an ex officio member of the council. Appointments will be made by the President-Elect, who will announce his selections to the last session of the House of Delegates as his first presidential duty. The President-Elect may reappoint members to the commission and reappoint chairmen as may be his wish.

Section 4. Each commission shall meet not less than two (2) times a year and more frequently as necessary, upon call of the chairman. The first meeting shall be held in the fall and prior to January.

Section 5. The commission will appoint committees from within or outside its membership with approval of the Executive Committee except that the chairman of each subcommittee so appointed shall be named from the commission membership. Committees may be assigned continuing projects or may be appointed for specific duties and discharged when such are completed. Committees will report to the COMMISSION through their chairmen at each meeting. If no report is received at a second consecutive meeting, the committee shall be discharged and a new committee may be appointed.

CHAPTER XI—COMMITTEES—Section 6

The chairman of each commission shall report in writing to the executive office, not later than March 20, a record of activity with resolutions as may be recommended to the House of Delegates. These reports shall be published in the April issue of the JOURNAL.

CHAPTER XI—COMMITTEES—Section 7

The Executive Director or the Executive Assistant shall attend all meetings of commissions, shall record commission actions and shall endeavor to assist in such work as may be requested of them. They shall also meet with and perform similar functions for committees.

CHAPTER XI—COMMITTEES—Section 8

The President will, as early in his term of office as may be practical, and subsequently as occasion arises, advise commissions of projects he wishes them to undertake. New projects shall have approval of the Executive Committee. The House of Delegates, the Council and the Executive Committee may similarly assign special tasks to commissions.

CHAPTER XI—COMMITTEES—Section 9

The commission on *Scientific Study* shall be active in the areas previously included by the committees on Anesthesiology, Child Welfare, Conservation of Eyesight, Conservation of Hearing and Speech, Control of Cancer, Control of Tuberculosis, Diabetes, Maternal Welfare, Mental Health, Pathology, Perinatal Welfare, Study of Heart Disease and Venereal Disease, and in such other scientific studies as may be selected.

CHAPTER XI—COMMITTEES—Section 10

The commission on *Socio-Economic Study* shall be active in the areas previously included by the committees on Dependents of Servicemen Program, Endowment, Fee Schedule, Industrial Medicine, Medical

Economics, Relations with the Bar Association, and in such other studies as may be selected.

CHAPTER XI—COMMITTEES—Section 11

The commission on *Health Services* shall be active in the areas previously included by the committees on Aging, Allied Groups, Coroners, Emergency Medical Care, Hospitals, Public Health, Relations with Religion, Rural Health, Safety, Welfare, and in such other studies as may be selected.

CHAPTER XI—COMMITTEES—Section 12

The commission on *Society Organization* shall be active in the areas previously included by the committees on Arrangements, Constitution and Rules, Credentials, Plans and Scope, and in such other studies as may be selected.

CHAPTER XI—COMMITTEES—Section 13

The commission on *Education* shall be active in the area previously included by the committees on History, Medical School, Post Graduate Study, Public Relations, School Health, and such other studies as may be selected.

CHAPTER XI—COMMITTEES—Section 13

Reference Committees for the House of Delegates shall be appointed by the Speaker in consultation with the Vice Speaker of the House of Delegates. There shall be appointed by March 20, a Committee on Reports, consisting of two or more members. It shall be the duty of this committee to prepare from the reports of officers, councilors and from the minutes of the Council, the Executive Committee and all committees such resolutions as are recommended. The chairman will specify their origin and introduce these resolutions to the first session of the House of Delegates.

There shall be appointed not later than the opening of the first session of the House of Delegates two or more reference committees designated by number and consisting of three or more members each. These committees will meet at an announced time and place between the two sessions of the House of Delegates to hear discussion and to make recommendations upon resolutions introduced into the House and referred to them by the Speaker. At the second session of the House of Delegates, the chairman shall read each resolution together with the recommendations as made by his reference committee.

CHAPTER XI—COMMITTEES—Section 15

Advisory Committees shall be appointed by the President for a one-year term to assist special groups or associations. They shall be the Committee on Auxiliary, the Committee on Medical Assistants, the Committee on Blue Shield Relations, the Committee on

State Meeting Format, and such others as may be determined.

- a. The President-Elect shall consult with the President-Elect of the Woman's Auxiliary regarding appointment of the Committee on Auxiliary.
- b. The President-Elect shall consult with the President-Elect of the Kansas Medical Assistants Society regarding appointment of the Committee on Medical Assistants.
- c. The President-Elect shall consult with the President of Kansas Blue Shield regarding appointment of the Committee of Blue Shield Relations.
- d. The Committee on State Meeting Format shall consist of the most recent general chairman of the Annual Session of each city where Annual Sessions are held. His term shall continue until a new general chairman is appointed by his county society. The President-Elect is chairman of this committee. The committee shall meet not later than sixty (60) days following the close of each Annual Session in the city where the next Annual Session will be held with the local planning committee to review with them the format of the coming meeting. The committee will also recommend the general format to the host society where the meeting two years hence is to be held.

CHAPTER XI—COMMITTEES—Section 16

Special Committees may be appointed by the President as he finds need for special services in areas or for purposes which do not readily apply to standing committees. In most instances these will be appointed for a single task and a given period of time and the committee will be discharged when its duties have been completed.

CHAPTER XI—COMMITTEES—Section 17

The duties of the former Committee on Necrology will be performed by the Editorial Board.

CHAPTER XI—COMMITTEES—Section 18

Policy statements by commissions or by committees are recommendations and become Society policy upon adoption by the House of Delegates or by the Council as authorized to act for the House of Delegates during the interim between meetings of the House of Delegates.

CHAPTER XI—COMMITTEES—Section 19

Expenditures by commissions or committees relating to projects or activities must have prior approval of the House of Delegates or the Council. Other expenditures shall not be made. No contract, debt or obligation, oral or written, shall be incurred in the name of the Kansas Medical Society by any officer, committee, member, employee or agent unless or until

the same has been previously authorized by vote of the House of Delegates or the Council, or the Executive Committee, and no such authorization shall extend beyond the next annual Meeting of the House of Delegates.

RESOLUTION NO. 9

C. Arden Miller, M.D.

(The following resolution was introduced at the first meeting of the House of Delegates. A motion was made by Dr. Lucien R. Pyle, seconded by many, that this resolution be adopted immediately, without referral to a reference committee. It was unanimously approved.)

WHEREAS, C. Arden Miller, M.D., has performed an exceptional service to medical education during his tenure as Dean of the University of Kansas School of Medicine; and

WHEREAS, Through his continued efforts the relationship between the Medical School and the physicians of this state, long considered outstanding in the nation, have strengthened; therefore

Be It Resolved, The Kansas Medical Society expresses its regret that his personal interests determined him to resign, but with deep gratitude we acknowledge his service to medicine and welcome his continued activity in this Society when he returns to the role of professor.

RESOLUTION NO. 10

Student American Medical Association

WHEREAS, The Kansas Chapter of the Student American Medical Association, functioning under the sponsorship of the Medical Center; and

WHEREAS, SAMA and KUMC requested this Society to participate with their efforts in an advisory capacity and through financial support; and

WHEREAS, The Council recommended that this Society should cooperate with SAMA to acquaint students at the University of Kansas School of Medicine in the operation, the benefits and the purpose of this Society; therefore

Be It Resolved, That the Council in May of each year appoint one or more physicians to serve as advisors to SAMA and to notify the Dean of the School of Medicine the names of physicians so appointed; and

Be It Further Resolved, That the president of SAMA (Kansas Chapter) or his designate be invited to attend meetings of the Council in an ex officio capacity; and

Be It Further Resolved, That the Treasurer is authorized to pay from Society funds to the president of SAMA (Kansas Chapter) reasonable expenses for attendance at the national convention of SAMA.

RESOLUTION NO. 11**Current Society Policy**

Similar to Resolution No. 43; therefore, Resolution No. 11 was not adopted.

RESOLUTION NO. 12**Revision of Kansas Relative Value Scale, Edition 1961**

WHEREAS, The 1964 Relative Value Studies published by the California Medical Association on August 8, 1964, have been studied by the Committee on Fee Schedule; and

WHEREAS, The California document is considerably expanded over the Relative Value Study adopted by the House of Delegates of the Kansas Medical Society on February 12, 1961; and

WHEREAS, The California Studies expanded the point scale from a maximum of 150 to 200 points and numerous alterations in procedure description, in point values and in numerical identification occur; therefore

Be It Resolved, That the House of Delegates approve the adoption of the California Relative Value Studies to be the relative value scale for the Kansas Medical Society with such alterations as are adopted in subsequent resolutions submitted by this Committee to this session of the House of Delegates; and

Be It Further Resolved, That the House of Delegates authorize this document as approved at this session of the House of Delegates to be published with each member of the Kansas Medical Society receiving a copy.

RESOLUTIONS NOS. 13-26

Resolutions No. 13 through No. 26 related to specific amendments to the relative value studies submitted by various specialty organizations. Printing them out of context with the remainder of the schedule would be without meaning. These will appear in the 1966 Kansas Relative Value Studies when published. Each of these resolutions was adopted.

RESOLUTION NO. 27**Educational Program—Kansas Medical Assistants Society**

WHEREAS, The Kansas Medical Assistants Society has been carrying out an intensive membership campaign; and

WHEREAS, The Kansas Medical Assistants Society, in cooperation with the University of Kansas Extension Service, has been active in organizing educational programs for medical assistants; and

WHEREAS, These activities are undertaken for the

ultimate benefit of each practicing physician; therefore

Be It Resolved, That the Kansas Medical Society undertake the educational program in cooperation with the Kansas Medical Assistants Society and each individual physician strongly urge each member of the office staff to join the local and state societies; and

Be It Further Resolved, That the Kansas Medical Society supports the plan of Kansas Medical Assistants Society to reduce the educational program fees.

RESOLUTION NO. 28**Cancer, Heart, Stroke**

WHEREAS, The AMA debated the details of the proposed legislation popularly called the Cancer, Heart Disease and Stroke report before it was enacted; and

WHEREAS, Many changes suggested by the AMA were adopted; and

WHEREAS, It is realized the AMA does not consider this an ideal or even an entirely sound law, nevertheless it is a law; therefore

Be It Resolved, That the Kansas Medical Society supports and commends the Medical School in its efforts to date in *planning* for the implementation of Public Law 89-239, and the Kansas Medical Society, through its Committee on Medical Schools, pledges its continued counsel in attempting to make this law a beneficial influence in the care of our patients, and pledges to continue the close relationship and new interchange of information in this matter which has traditionally existed between the Kansas Medical Society and the Kansas University Medical Center in previous issues.

RESOLUTION NO. 29**Research Study on Postgraduate Education****PREAMBLE**

The Kansas University School of Medicine and the Department of Anthropology at the Lawrence Campus were approached by Dr. James G. Roney, of the Stanford Research Foundation (formerly on the faculty of the School of Medicine at Kansas) offering to study the effectiveness of the teaching provided through the Postgraduate Education Department of the Medical Center at Kansas University. Kansas was selected for this study on the basis of its high reputation for excellence.

The study will attempt to evaluate the extent to which physicians utilize material presented by these courses and how such teaching ultimately affected the patient. Some correspondence and personal interviews will be carried on with physicians.

The Kansas Medical Society participated in the

planning of this project. It was reported to and approved by the Council.

WHEREAS, The Postgraduate programs conducted by the Kansas University Medical Center are widely acclaimed for their excellence; and

WHEREAS, The Kansas Medical Society has cooperated with the Medical Center in planning and in conducting such courses; and

WHEREAS, A detailed study by an independent research foundation of the effectiveness of such teaching may indicate ways in which this can be still further improved; therefore

Be It Resolved, The Kansas Medical Society support and cooperate with this project through its Committee on Medical Schools; and

Be It Further Resolved, That members of this Society be encouraged to participate in the study by supplying information as may be requested of them.

RESOLUTION NO. 30

Community Mental Health Centers

WHEREAS, Prompt and adequate development of comprehensive mental health centers in Kansas will best serve the mental health needs of all its citizens; and

WHEREAS, Most of the mental health clinics in Kansas do not now meet the minimal requirements for receipt of federal support funds; and

WHEREAS, The Kansas communities now struggling to maintain a mental health center entirely from the local tax dollar cannot be expected further to increase their financial support; and

WHEREAS, Experience with mental health centers in many states strongly supports the principle of multiple financing (local, state, federal, private); therefore,

Be It Resolved, That the Kansas Medical Society recommends that the STATE GOVERNMENT through the State Board of Health participate more actively in the development of comprehensive community mental health centers and insure adequate financing and proper licensing.

RESOLUTION NO. 31

Administration of Mental Health Activities

WHEREAS, The deluge of federal legislation in the past three years has brought increasing pressure on state governments to clarify their organizational structure, fiscal policies and functional efficiency in the mental health area; and

WHEREAS, This legislation, reflecting a sound medical principle, emphasizes the importance of continuity of patient care and coordination of all psychiatric services (institutional, nursing home, outpatient,

preventive, emergency, educational) under one program; and

WHEREAS, It is particularly essential that each state designate one central agency in the mental health field for the receipt of federal funds; therefore

Be It Resolved, That the Kansas Medical Society endorses the principle of continuity of patient care with information being supplied the local physician and recommends the concept of a single state agency under the State Board of Health for administration of mental health activities.

RESOLUTION NO. 32

Competitive Salary Scale for Professional Personnel

WHEREAS, Until recently the quality of professional care in Kansas mental hospitals was among the best in the nation; and

WHEREAS, That quality of medical care is now seriously jeopardized by the steady loss from these institutions of professional personnel because of a significantly lower salary scale compared to neighboring states; and

WHEREAS, Recruitment of new professional personnel is greatly handicapped because of substandard salary policies; and

WHEREAS, This low pay scale can be interpreted as a low interest on the part of the Legislature in maintaining high standards of patient care, thus making it difficult for mental health personnel in state institutions to feel a sense of worth and esteem in their work; therefore

Be It Resolved, That the Kansas Medical Society urge the State Legislature to adopt a competitive salary scale for professional mental health workers, by an increase in taxation if necessary, to avoid further encroachment into the quality of mental health care available to Kansas citizens.

RESOLUTION NO. 33

Combination of Committee Function

The purpose of this resolution was accomplished by the adoption of Resolution No. 8; therefore, Resolution No. 33 was not adopted.

RESOLUTION NO. 34

The Committee on Safety Emergency Medical Service

WHEREAS, The numbers of emergencies resulting from illness or injury are increasing each year throughout the United States; and

WHEREAS, Significant numbers of people can be saved from further aggravation of these injuries and

illnesses by skilled handling and transportation to the definitive care of a physician; and

WHEREAS, The physician is vitally concerned with the adequate provision of these services at the community, state and national levels; and

WHEREAS, The House of Delegates recognizes the need for medical guidance and leadership in this area of concern, particularly in the development of training of paramedical personnel, community organization, and other emergency services; therefore

Be It Resolved, That the Kansas delegates to the AMA be instructed to present a resolution to the AMA House of Delegates requesting the AMA to join with other health and medical organizations at the national level in a cooperative effort to improve these services; and that the Association urge state and local medical societies to join with health and medical groups in resolving this problem.

RESOLUTION NO. 35

Health Education

WHEREAS, The School Health Committee of the Kansas Medical Society has expressed its concern for the need for effective health education; and

WHEREAS, This concern has also been voiced by the AMA-NEA Committee on Health Problems in Education, American Public Health Association, School Health Section, the American School Health Association, and similar groups at the state level; and

WHEREAS, Major health problems affecting this country have brought renewed emphasis on this subject; therefore

Be It Resolved, That the State Department of Education, school boards, secondary school, college and university administrators become more fully aware of the importance of health education; and

Be It Further Resolved, That the School Health Committee of the Kansas Medical Society give encouragement and recognition to agencies conducting research into more effective health education; and

Be It Further Resolved, That teacher preparation institutions be encouraged to recognize the importance of health education as an academic subject.

RESOLUTION NO. 36

Orientation of Physicians: Sex Education of Patients and the Community

WHEREAS, The School Health Committee of the Kansas Medical Society has reviewed a survey of Kansas doctors on their concern with respect to the need for medical counseling of patients on sexual attitudes and behavior; and

WHEREAS, The AMA Committee on Maternal and Child Care and the AMA Committee on Human Reproduction have made recommendations urging increased emphasis on orientation of physicians con-

cerning patient education relating to sexual attitude and behavior; and

WHEREAS, Physicians frequently serve as resource persons in this area of health education in schools, colleges, and other youth agencies; therefore

Be It Resolved, That the Kansas Medical Society recommend increased emphasis on orientation of the physicians in the area of sexual attitudes and behavior in the curricula of our medical school; and

Be It Further Resolved, That our medical school and its programs of continuing medical education give consideration to incorporating appropriate teaching of physicians in the area of counseling relating to sexual attitudes and behavior.

RESOLUTION NO. 37

Health Services Provided by the State of Kansas

WHEREAS, The State of Kansas, through the use of tax money appropriated by the legislature, provides health care for many persons; and

WHEREAS, Some health care is provided by state agencies not oriented with the providers of health services; and

WHEREAS, This circumstance has occasioned conflicts and duplication of effort resulting in serious increases in expense and reduction of efficiency; therefore

Be It Resolved, That the Kansas Medical Society invite the professional associations in allied health services within this state to cooperate in preparing recommendations to the Governor of Kansas and to the Legislature on revisions in the statutes which will give responsibility for providing health care to such agencies as are designed to work in health; and

Be It Further Resolved, That—

1. State programs relating to education of persons in the health fields be directed to the University of Kansas School of Medicine;

2. State programs relating to health care including programs of Title XIX, of PL 89-97 be directed to the State Board of Health;

3. State programs relating to eligibility for receiving health care be directed to the State Board of Social Welfare; and

Be It Further Resolved, That—

1. The Division of Institutional Management be transferred from the State Board of Social Welfare to the State Board of Health;

2. The Division of Services for the Blind be transferred from the State Board of Social Welfare to the State Board of Health.

RESOLUTION NO. 38

Professional Charges for Welfare Health Services

WHEREAS, Public Law 89-97 provides that pro-

professional services rendered under Part B of Title XVIII shall represent usual and customary charges within the range of charges prevailing in the community; and

WHEREAS, The Department of Health, Education and Welfare has ruled that by 1970 physician payments for services rendered those eligible under Title XIX of PL 89-97 shall represent usual and customary charges within the range of charges prevailing within the community and that this shall be accomplished as rapidly as possible before that date; therefore

Be It Resolved, That the charges submitted by a physician to Kansas Blue Shield as his usual and customary fee where certified by Blue Shield as within the range of prevailing charges within the community shall be the charge made by such physician for services rendered recipients of Welfare in this state; and

Be It Further Resolved, That Kansas Blue Cross and Blue Shield with the Kansas Hospital Association and the Kansas Medical Society invite the State Board of Social Welfare to explore the advantages of paying for health care for recipients of Welfare through fiscal arrangements with Blue Cross-Blue Shield.

RESOLUTION NO. 39

Liaison With Welfare

WHEREAS, The State Board of Social Welfare is charged under state and federal law with the obligation to purchase health services in behalf of persons certified to be eligible for such care; and

WHEREAS, A mutual understanding between the agency purchasing health care and those who provide health care will greatly improve the service to welfare recipients and bring about an increased efficiency in the operation of this program; therefore

Be It Resolved, That three physicians selected by the Committee on Welfare shall represent this Society in negotiations with the State Board of Social Welfare; and

Be It Further Resolved, That they are directed to invite the Board of Social Welfare to meet at stated intervals to discuss such matters as relate to physicians services for recipients of Welfare; and

Be It Further Resolved, That this committee report regularly to the Council regarding its findings.

RESOLUTION NO. 40

Insurance for Welfare Recipients

WHEREAS, All recipients of Welfare over age 65 are eligible to be enrolled under Part B of PL 89-97; and

WHEREAS, A considerable portion receive Social

Security benefits including the increased payment to cover the premium charge for Part B insurance; therefore

Be It Resolved, That the State Board of Social Welfare be requested to recommend that recipients of Welfare over age 65 enroll under Part B; and

Be It Further Resolved, That a letter making such recommendations be prepared by the President of the Kansas Medical Society and sent to the Governor of Kansas, to the Chairman of the Kansas Legislative Council and to the Chairman of the Kansas State Board of Social Welfare.

RESOLUTION NO. 41

Relationship of Kansas Medical Society to KaMPAC

WHEREAS, The fund raising and disbursement activities of KaMPAC are conducted separate and apart from the activities of the Kansas Medical Society; and

WHEREAS, The dissemination of information on educational matters relating to the responsibilities of citizenship are proper activities of the Kansas Medical Society; and

WHEREAS, It is the obligation of the personnel in the Executive Office of the Kansas Medical Society to contribute their services in this field as may be requested of them (which they desire to do); therefore

Be It Resolved, That the Kansas Medical Society will continue to advise its members, their wives and such other individuals or groups as may be selected, upon educational issues relating to health care and recommend that they individually become active in politics through contributions of time and money; and

Be It Further Resolved, That the Society, through its officers, members and employees will recommend that the above be accomplished through their individual affiliations with KaMPAC, the political voice of the physicians of Kansas; and

Be It Further Resolved, That employees of this Society when engaged in such activity will limit their effort exclusively to education and that such activity on their part is their personal, voluntary contribution for which they are not paid by this Society; and

Be It Further Resolved, That all monies or service contributed by this Society to KaMPAC, if such there be, is strictly to be used for education and no portion of which is to be contributed toward a political campaign for any candidate nor in the effort to elect or defeat the candidate for any office and that any such expenses, if such there be, be accountable quarterly to the Council of the Kansas Medical Society and that this resolution shall in no way be considered a major fund source for KaMPAC.

RESOLUTION NO. 42**Kansas Medical Political Action Committee**

WHEREAS, The Kansas Medical Society does not support candidates for elective office; and

WHEREAS, In 1962 the Society did encourage the formation of the Kansas Medical Political Action Committee, hereinafter referred to as KaMPAC; and

WHEREAS, The Society should encourage physicians and their wives to contribute their money and time, and be active in the political party of their choice; and

WHEREAS, The Society may engage in educational activities as they relate to politics; and

WHEREAS, KaMPAC relates its activities to the support of candidates for Congress and has solicited the physicians and their wives for voluntary contributions; and

WHEREAS, The complexity of government intervention versus free enterprise and individual responsibility has steadily but surely become a problem which must be thoroughly understood by all; and

WHEREAS, KaMPAC has not received the support that its Board of Directors would like to have from the physicians and their wives; therefore

Be It Resolved, That the House of Delegates reaffirm their support of KaMPAC and encourage the individual physician and his wife to join KaMPAC, contributing money and time in this venture to preserve the American Heritage that we have so proudly achieved over the years; and

Be It Further Resolved, That the Kansas Medical Society support an educational program through whatever means of communication it has to inform the members of the Society on controversial issues.

RESOLUTION NO. 43**Up-to-Date Record of the Policy of the Kansas Medical Society**

WHEREAS, Our personnel of the Executive Office in Topeka have made a study and summary of the actions of this House over the past 20 years; and

WHEREAS, Many of the actions, in any one year, contradict the action taken in preceding meetings; and

WHEREAS, There is no place that one can momentarily find what the policy of the Society actually is; and

WHEREAS, An up-to-date analysis of these actions would be of immeasurable value to our elected officers, our executive secretaries, our county society secretaries and officers and, in fact, each member of our Society; and

WHEREAS, No present analysis is now in existence except in the summary prepared by our executive secretaries; therefore

Be It Resolved

1. That this material so prepared be turned over

to the Plans and Scope Committee along with the minutes of the meetings for the past 20 years, and that

2. The Plans and Scope Committee formulate and put in proper arrangement or category the area in which each action fell, and that

3. When any two or more actions upon the same subject are contradictory, that the one last passed shall be considered the policy of the House and that all prior actions be rescinded and deleted, and that

4. These actions, including the Constitution and By-Laws, be so categorized that they can be presented to this House at the Annual Meeting in 1967 for action, and

5. If the House approves, that they can be published according to the duodecimal system in loose leaf binders, so that they can be kept up to date each year by reproducing or adding new sheets for those that have become obsolete by actions of the House, and that

6. Each county medical society secretary and the elected officers and the central office will always have an exact record of the Policy of this Society.

(This resolution was amended to read that in publishing the material only the resolving sections would be used.)

RESOLUTION NO. 44**Laboratory Service and Blue Cross**

WHEREAS, Pathology constitutes an integral part of the practice of medicine as defined by courts of law, the American Medical Association and the Kansas Medical Society; and

WHEREAS, Pathologists in a hospital must be members of the medical staff with the same educational qualifications, rights, privileges, duties and responsibilities as other physicians; and

WHEREAS, Inclusion of professional services of pathologists as hospital services constitutes a serious threat towards the ultimate inclusion of all physicians as hospital based employees; and

WHEREAS, The House of Delegates of the American Medical Association stated on October 3, 1965, that hospital based medical specialists are engaged in the practice of medicine. The fees for services of such specialists should not be merged with hospital charges but should be established, billed and collected by the medical specialists in the same manner as are the fees of other physicians; and

WHEREAS, Public Law 89-97 makes it mandatory that no physician's professional fee is included under the hospital service (Part A) of the law; and

WHEREAS, Kansas Blue Cross now includes medical laboratory services in its payment to hospitals as subscriber benefits; therefore

Be It Resolved, That the Kansas Medical Society

encourage its member pathologists to strive for arrangements under which they accept full responsibility for establishing, presenting and collecting fees for their service, whether under medicare, prepaid or other health insurance, or patient billing; and

Be It Further Resolved, That the Kansas Medical Society urge that the professional component of laboratory fees be transferred from Kansas Blue Cross to Kansas Blue Shield; and

Be It Further Resolved, That the Kansas Medical Society express its approval of arrangements whereby the pathologist assumes the responsibility for charges for his professional fee; and

Be It Further Resolved, That the Kansas Medical Society requests and urges constituent medical societies to assist in the implementation of these policies.

RESOLUTION NO. 45

Board of Health

WHEREAS, Laboratory medicine has expanded in Kansas in the past decade; and

WHEREAS, Qualified laboratory directors have located in most of the geographic areas of the state; and

WHEREAS, In the best tradition of medicine and the free enterprise system these facilities are now serving the health of our citizens; therefore

Be It Resolved, That the Kansas Medical Society agree that for the promotion of better medical care in Kansas, the State Board of Health Laboratory be encouraged in its present efforts to develop programs concerned with consultations, research and education and to limit routine screening procedures; and

Be It Further Resolved, That in order to expedite the above program the Kansas Medical Society supports the plan for a new Public Health Laboratory and building.

RESOLUTION NO. 46

Policies Recommended for Individual Physicians

WHEREAS, Once the physician accepts a person as his patient, regardless of what third party might be involved, the physician's primary and sole obligation, his contract and his relationship are with the patient; and

WHEREAS, Any arrangement between government and a citizen whereby the government agrees to pay for the citizen's medical care does not, directly or indirectly, or by inference involve the physician in a contract with the government; and

WHEREAS, The physician will continue, even as before, to provide those persons he accepts as patients the best possible medical care at his command; therefore

Be It Resolved, That the physician may deal direct-

ly with the patient, both in providing medical care and in billing for just and reasonable compensation for the medical care provided; and

Be It Further Resolved, That inasmuch as the agreement for financial responsibility is between the patient and the government, that the physician may or may not accept any assignment form; and

Be It Further Resolved, That members of this Society may submit to the patient their own bill and receive from the patient their usual and customary fees for professional medical services.

RESOLUTION NO. 47

Department of Social Welfare

WHEREAS, The Kansas Department of Social Welfare has made no provision to compensate a doctor of medicine who accepts the responsibility for the care of the patient whose only diagnosis is that of mental illness, i.e., neurosis or psychosis; and

WHEREAS, After complete physical examination, diagnosis and recommendation by the attending physician this patient may be transferred to one of the state's psychiatric centers for further evaluation and treatment after which he is returned to the referring M.D. who receives no compensation for his previous work nor his continued care; and

WHEREAS, The State of Kansas is still regarded as the leader as to early diagnosis, treatment and follow-up care of mental illness; therefore

Be It Resolved, That the Kansas Medical Society urgently recommend to the Kansas State Department of Social Welfare and to the Kansas Legislature the implementation of such an authorization to provide for reasonable compensation to these physicians who accept the responsibility for the care of this type patient.

RESOLUTION NO. 48

AMA Membership

After considerable discussion this resolution failed to carry; therefore, it was not adopted.

RESOLUTION NO. 49

AMA Dues Increase

After considerable discussion this resolution was not adopted.

RESOLUTION NO. 50

Emergency Medical Care and Transportation

WHEREAS, Millions of persons require emergency medical care in the United States each year due to injury; and

WHEREAS, The medical profession is vitally con-

cerned with the adequate provision of these services at the local, state and national levels; therefore

Be It Resolved, That the Kansas Medical Society join with other health and medical organizations at the state level in a cooperative effort to promote legislation and education of the public which will bring about the improvement of emergency medical services throughout the State of Kansas.

RESOLUTION NO. 51

Senate Bill 2568

WHEREAS, Senator Philip A. Hart, Democrat from Michigan, Chairman of Senate Anti-Trust and Monopoly Committee, has introduced a bill making it illegal for a physician to dispense drugs, devices or eyeglasses to his patients; and

WHEREAS, It has always been the privilege of a physician to dispense such drugs, devices and eyeglasses he believes meets the needs of his patients; and

WHEREAS, It is the opinion of this Society that any federal legislation concerning the dispensing of drugs, devices or eyeglasses infringes on the State Licensing Authority; and

WHEREAS, This Bill 2568 uniformly regulates Ophthalmologists, for example, and does not restrict non-medical eye examiners who dispense optical devices; therefore

Be It Resolved, That the Kansas Medical Society oppose Bill 2568 as being restrictive to physicians and not in the best interest of their patients; and

Be It Further Resolved, That we forward a copy of this Resolution to the American Medical Association, Senators and Congressmen from Kansas.

REPORT OF THE JOURNAL EDITOR

The Report of the Editor of the JOURNAL was referred to a Reference Committee which made the following recommendations.

1. As was apparent to everyone who heard Dr. Clark present the report, it is excellent in its preciseness and in its clarity.

2. It is obvious to everyone that Dr. Clark and the members of his Board gave untold hours to this work and we in the Society are much in their debt. However small recompense these words may be, we express our most sincere thanks to Dr. Clark and to his Board for their much appreciated service.

3. We agree with Dr. Clark's appeal to the Society for additional physicians to submit good papers for publication—especially brief reports of interesting cases. We recommend that the president be directed to advise the membership by letter of this request and that he urge the members to submit such papers for

publication as interesting experiences occur within their practice.

4. The Editor repeated that JOURNAL reserves are being depleted to overcome deficient income, and the day may come when a larger subscription rate than the current \$2.00 may need to be assessed against membership dues, unless the present format of the JOURNAL is to be changed. Your committee expressed its pride in the JOURNAL as it now exists and agreed with the Editor that the appearance of the publication and the ease with which articles may be read are factors contributing to its excellence. Your committee recommends the present JOURNAL format be continued and expresses its confidence that the JOURNAL is of sufficient value to the members of this Society that when a need for a higher subscription rate occurs, the House of Delegates will most likely authorize it.

RESOLUTION NO. 52

Woman's Auxiliary 100% Membership Plan

WHEREAS, The AMA has recently adopted a resolution encouraging physician members to support the National Woman's Auxiliary "100% Membership Plan"; and

WHEREAS, Such 100 per cent plan would broaden the financial and membership base of Auxiliary activities; and

WHEREAS, The Kansas Medical Society has always sought to encourage and promote the manifold endeavors of the Auxiliary; therefore

Be It Resolved, That the Kansas Medical Society grants permission to institute this plan on a *County Option Basis*.

RESOLUTION NO. 53

Eye Injuries

WHEREAS, Injuries constitute a major cause of loss of vision among young people; and

WHEREAS, The following has been recommended by the Eye, Ear, Nose and Throat Section of the Kansas Medical Society; therefore

Be It Resolved, That the Kansas Medical Society support passage of the following item of legislation in the 1967 session of the Kansas Legislature:

An act to enact legislation requiring all students and teachers to wear protective eye devices when participating in certain vocational, industrial arts, and chemical-physical courses or laboratories.

Be it enacted by the legislature of the State of Kansas:

SECTION 1. Every student and teacher in schools, colleges, and universities participating in any of the following courses:

A. Vocational or industrial art shops or laboratories involving experience with:

1. Hot molten metals
2. Milling, sawing, turning, shaping, cutting, grinding, or stamping of any solid materials
3. Heat treatment, tempering, or kiln firing of any metal or other materials
4. Gas or electric arc welding
5. Repair or servicing of any vehicle
6. Caustic or explosive materials

B. Chemical or combined chemical-physical laboratories involving caustic or explosive chemicals or hot liquids or solids;

Is required to wear industrial quality eye protective devices at all times while participating in such courses or laboratories. Such devices may be furnished for all visitors to such classrooms and laboratories. Such devices may be purchased in large quantities and sold at cost to students and teachers.

"Industrial quality eye protective devices," as

used in this section, means devices meeting the standards of the American Standards Association Safety Code for Head, Eye, and Respiratory Protection, Z2. 1-1959, promulgated by the American Standards Association, Inc.

RESOLUTION NO. 54

Vote of Thanks

WHEREAS, The Annual Meeting of the Kansas Medical Society in 1966 has been an outstanding success; and

WHEREAS, Certain individuals and groups of the Society have rendered outstanding service to the Society and this meeting; therefore

Be It Resolved, That the House of Delegates present a vote of thanks to the officers of the Society, the Executive Committee, the Reference Committee and the presiding officers; and to the members of the Sedgwick County Medical Society for their outstanding services.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence Summary of Cases Reported in March, 1966 and 1965

<i>Diseases</i>	<i>March</i>			<i>January-March Inclusive</i>		
	<i>1966</i>	<i>1965</i>	<i>5-Year Median 1962-1966</i>	<i>1966</i>	<i>1965</i>	<i>5-Year Median 1962-1966</i>
Amebiasis	—	—	1	1	—	2
Aseptic meningitis	—	—	—	—	3	1
Brucellosis	—	—	1	1	—	1
Diphtheria	—	—	—	—	—	—
Encephalitis, prim., infect.	—	—	—	—	5	4
Encephalitis, post-infect.	—	—	*	—	3	*
Gonorrhea	228	227	227	713	613	700
Hepatitis, infectious	21	72	44	60	185	185
Meningococcal meningitis	—	2	1	4	6	4
Pertussis	1	4	1	2	8	4
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	1	—	—	2	2
Salmonellosis	12	18	12	36	51	36
Scarlet fever	17	5	25	50	41	58
Shigellosis	—	15	4	20	29	20
Streptococcal infections	289	324	230	845	1330	744
Syphilis	85	62	97	264	235	264
Tinea capitis	4	3	6	14	12	24
Tuberculosis	42	16	29	84	50	74
Tularemia	—	—	—	—	1	2
Typhoid fever	—	—	—	1	—	—

* Statistics on 5-year median not available.

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

I am writing this letter on the plane returning from the Washington meeting of AMPAC. It was a good meeting and much was learned.

Representative Melvin Laird of Wisconsin told us the medical profession should be in politics more than ever to protect ourselves. There is a "sleeper" in the Medicare Bill called Title XIX. This is like a Kerr-Mills Bill without an age limit. In other words, it furnishes complete medical care for the near-indigent regardless of age. Each state sets up the program and the federal government adds matching funds. The program must be set up in each state by 1975 or federal funds will be cut off for other programs. Seven states plus Puerto Rico have initiated plans; New York is the latest. Here a family with an annual income of \$6,000 and savings of \$3,000 is provided full medical care by the government. Those eligible are seven million of the state's 18 million population. Add to this, those on Medicare and the total is astronomical. The federal cost of the program for the 50 states has been estimated to be \$238,000,000 for the first year. The seven states enrolled before New York will spend far in excess of the estimate (\$326,000,000), and New York will add at least another \$100,000,000.

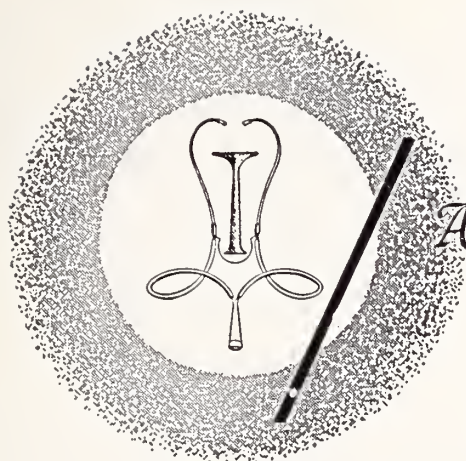
This means trouble for the medical profession. Mr. Laird prophesies that the cost will be so great that cuts will have to be made. It cannot be with the hospitals so it will fall on the medical profession. Even this will not suffice, and the end result will be that each doctor will be a government-paid civil servant!

I am sure this is not what you want. Our best recourse is the election of congressmen who have our philosophy so this law can be changed. United, we can do it; singly, it is impossible. KaMPAC is the place for you and your membership is solicited.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

AUGUST

- Aug. 12-13 National Conference on Infant Mortality, sponsored by AMA Committee on Maternal and Child Care, Fairmont Hotel, San Francisco. For information write: Secretary, Committee on Maternal and Child Care, AMA, 535 N. Dearborn, Chicago 60610.
- Aug. 24-26 13th Western Cardiac Conference, University of Colorado Medical Center, Denver. For information write: Colorado Heart Association, 1375 Delaware St., Denver 80204.

SEPTEMBER

- Sept. 11-16 Flying Physicians Association, 12th annual meeting, Dunes Hotel, Las Vegas. For information write: Roy B. Coffey, M.D., 162 Overhill Road, Salina, Kansas.
- Sept. 26-30 Animal Care Panel, 17th annual meeting, Edgewater Beach Hotel, Chicago. For information write: Joseph J. Garvey, 4 East Clinton, Joliet, Illinois 60434.
- Tenth Congress of the Pan-Pacific Surgical Association:
- Sept. 20-28 Part I—Honolulu, Hawaii
- Sept. 28-
Oct. 10 Part II—Japan and Hong Kong
- Sept. 28-
Nov. 1 Part III—Japan, Hong Kong, the Philippines, Thailand, India, Singapore, Australia, New Zealand.

For more information write: Pan-Pacific Surgical Association, Room 236, Alexander Young Building, Honolulu, Hawaii 96813.

OCTOBER

- Oct. 1-2 International Conference on Pathology of Renal Diseases, New York Medical Col-

lege. Write: New York Medical College, 5th Avenue at 106 St., New York, New York 10029.

- Oct. 22-27 American Academy of Pediatrics, 35th annual meeting, Palmer House Hotel, Chicago. Write: American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

POSTGRADUATE COURSES

University of Colorado:

- Aug. 1-5 *Pediatrics* (Estes Park)
- Aug. 8-12 *Internal Medicine* (Estes Park)
- Aug. 15-19 *Clinical Audiology* (Estes Park)

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- July 25-29 *Interpretation and Therapy of Cardiac Arrhythmias*, Marriott Motor Hotel

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

- Sept. 15-16 *Interprofessional Seminar on Diseases Common to Animal and Man*, Kansas State University College of Veterinary Medicine, Manhattan. Write Donald C. Kelley, D.V.M., for details.

- Oct. 27-29 *Postgraduate Gastroenterology*, American College of Gastroenterology, Bellevue Stratford, Philadelphia. Write to the American College of Gastroenterology, 33 West 60th St., New York, New York 10023.



Book REVIEWS

APPLIED HYPNOSIS AND POSITIVE SUGGESTION in Medicine, Dentistry, and Patient Care, by George A. Ulett, Ph.D. and Donald B. Peterson, M.D. The C. V. Mosby Company, St. Louis, 1965. 134 pages. \$8.50.

This thin book touches lightly on a wide range of topics which are much better dealt with in the original articles listed in the bibliography and suggested readings. The summarized material is informally and unevenly treated, at times being overly detailed and cryptic in other places. Although paying lip service to a "broad framework of an eclectic therapeutic regime," the authors' magical conception and omnipotent feelings about hypnosis are apparent in the invoking of a "seal" so that patients cannot be hypnotized by any other hypnotist and such commands as: "you can't feel a thing—you'll stay that way until I tell you differently." The limited theoretical view they present on the nature of hypnosis based on suggestibility and role playing ignores the experimental literature of psycho-physiologically "altered states" brought about by hypnotic induction procedures.

If the authors wrote this book for a general audience of healing art practitioners, readers could be seriously misled. For example, in the chapter on Habit Control, they outline easy sounding prescriptions for the treatment of alcoholism, cigarette smoking, insomnia and stuttering. Their gross oversimplification of the nature of these disturbances and their glib solutions are likely to lead to unwarranted and misplaced disillusionment in the usefulness of hypnosis. Furthermore, the space devoted to certain subjects is unfortunately disproportionate and in the reviewer's opinion, inverse to their importance. The use of hypnosis in dermatology covers two whole pages, while only four lines are devoted to the far more important application of hypnosis to the relief of pain. Scattered throughout are many helpful, practical suggestions which, if expanded, would have

made a much needed and far more useful manual on technique. As it is, this book is inadequate and a poor source for a novice looking for a sound introduction to the use of hypnosis and suggestion.—*L.S.*

BONE TUMORS, by Louis Lichtenstein, M.D. C. V. Mosby Company, St. Louis, 1965. 411 pages, illustrated. \$16.75.

Many of the concepts of bone lesions, either benign or malignant have not changed radically in the past ten or fifteen years, which is evident by the numerous monographs and texts published. Yet none is quite so concise nor as complete in providing current bone pathology as this third edition of Lichtenstein's Bone Tumors.

In the seven years since the earlier editions of his book the author has supplemented clinical descriptions with more representative cases, and has included a chapter of "Unusual benign and malignant chondroid tumors of bone," and has increased the number of roentgenograms and photomicrographs in each section of the book.

It is evident this book will be most helpful to the surgeon who is confronted with not only the typical lesions of bone, but also with those tumors which are variants or atypical neoplasms. Lichtenstein again stresses his classification of tumors by their tissue derivation: those of hematopoietic origin, those of nerve origin, and those of vascular beginning, and the tumors of osteoblastic connective tissue derivation. Each chapter provides the clinical features of that tumor, the roentgenograms, a pathological interpretation of the gross and microscopic supplemented with photomicrographs. The conclusion of each chapter is devoted to various methods of treatment, and finally to the prognosis of each tumor. Physicians will find this edition of bone tumors an essential addition to their current references not only for its contents but for its presentation.—*H.G.K.*



Along The BOOKSHELF

Recent Acquisitions

Clendening Medical Library

Angell, James Cyril. The acute abdomen for the man on the spot. Lippincott, 1965.

Armstrong, James Rowman, M.D. Lumbar disc lesions. . . . 3d ed. Williams & Wilkins, 1965.

Barness, Lewis A. Manual of pediatric physical diagnosis. 3d ed. Year Book Medical Publishers, 1966.

Bosselman, Beulah Chamberlain. Introduction to developmental psychiatry. Thomas, 1965.

Boszormenyi-Nagy, Ivan, ed. Intensive family therapy. . . . Harper & Row, 1965.

Browning, Ethel (Chadwick). Toxicity and metabolism of industrial solvents. Elsevier Pub. Co., 1965.

Carlsten, Arne. The circulatory response to muscular exercise in man. Thomas, 1966.

Cassels, Donald E., ed. Electrocardiography in infants and children. Grune & Stratton, 1966.

Chance, Britton, ed. Control of energy metabolism. Academic Press, 1965.

Ciba Foundation Study Group No. 20, London, 1964. Functions of the corpus callosum. Little, Brown, 1965.

Cope, Oliver. Medical education reconsidered; report of the Endicott House summer study on medical education, July, 1965. Lippincott, 1966.

Cort, Josef H. Electrolytes, fluid dynamics, and the nervous system. Academic Press, 1965.

Cozen, Lewis Nathan. An atlas of orthopedic surgery. Lea & Febiger, 1966.

Curtis, David R., ed. Studies in physiology. . . . Springer-Verlag, 1965.

Davidson, James Norman. The biochemistry of the nucleic acids. 5th ed. J. Wiley, 1965.

Davies, John Tasman. The scientific approach. Academic Press, 1965.

Decker, Kurt, ed. Clinical neuroradiology. McGraw-Hill, 1966.

Dewhurst, D. J. Physical instrumentation in medicine and biology. Pergamon Press, 1966.

Ebashi, Setsurō, ed. Molecular biology of muscular contraction. Elsevier Pub. Co., 1965.

Engel, Stefan. The prenatal lung. Pergamon Press, 1966.

Fawcett, Don Wayne. An atlas of fine structure. . . . W. B. Saunders Co., 1966.

Fowles, John. The magus. Little, Brown, 1965.

Freeman, Thomas. Studies on psychosis. . . . International Universities Press, 1965.

Haftner, Ernst. Praktische Gastroenterologie. Thieme, 1965.

Haimann, Theo. Supervisory management for hospitals and related health facilities. Catholic Hospital Association, 1965.

Hall, James L. A correlative study guide for neuroanatomy. Harper & Row, 1966.

Herlin, Lennart. Sciatic and pelvic pain due to lumbosacral nerve root compression. Charles C Thomas, 1966.

Houts, Marshall. Death. M. Bender, 1966.

Kreshover, Seymour Jacob, ed. Environmental variables in oral disease. . . . American Association for the Advancement of Science, 1966.

Langeron, Maurice. Outline of mycology. 2d ed. Charles C Thomas, 1965.

Lidz, Theodore. Schizophrenia and the family. International Universities Press, 1965.

Linman, James W. Principles of hematology. Macmillan, 1966.

McGregor, Ian A. Plastic surgery for nurses. E. & S. Livingstone, 1966.

McGuff, Paul Edward. Surgical applications of laser. Charles C Thomas, 1966.

McKusick, Victor A. Heritable disorders of connective tissue. 3d ed. C. V. Mosby Co., 1966.

McLennan, Charles E. Synopsis of obstetrics. 7th ed. C. V. Mosby Co., 1966.

Marcuse, Peter M. Diagnostic pathology in gynecology and obstetrics. Harper & Row, 1966.

Masters, William H. Human sexual response. Little, Brown, 1966.

Morley, Muriel E. Cleft palate and speech. 6th ed. Williams & Wilkins, 1966.

Micola, Toufick. Atlas of orthopaedic exposures. Williams & Wilkins, 1966.

Pearson, John William. Historical and experimental approaches to modern resuscitation. Charles C Thomas, 1965.

The Kansas Medical Society—1966-1967

OFFICERS

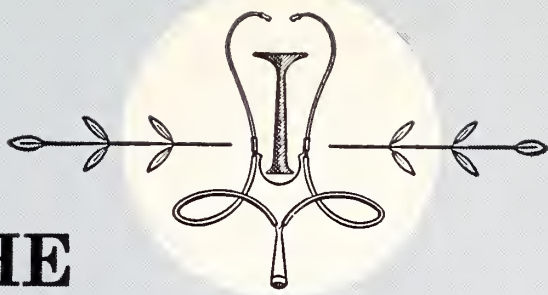
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Kansas Chapter



Tic Douloureux

Management by Neurolysis

JACK R. COOPER, M.D., *Shawnee Mission**

TIC DOULOUREUX is the most painful nonfatal affliction encountered in medicine. Paroxysms of lancinating pain which are confined to the trigeminal distribution strike like repetitious flashes of electricity. A characteristic grimace or attitude is usually present in the attack. The eyes may be tightly closed and the mouth opened to suggest a sardonic grin. While a squeal of anguish may occur at the onset, the afflicted is characteristically motionless and speechless during the attack.

Dolorogenic or trigger areas that are likewise confined to the trigeminal distribution precipitate showers of pain as the areas are stimulated by contact, mastication, swallowing, washing, or perhaps a smile. They commonly appear at the angle of the mouth, the nasolabial fold, and the ala of the nose. To avoid unnecessary stimulation the hands may be clasped close to the face without contact. Shaving and washing in these areas may be carefully avoided and contribute to a careless or unkempt appearance. The demonstration of dolorogenic areas serves to cinch the diagnosis. Occasionally they are found in the mouth, on the tongue, or associated with a tooth. They may be multiple or appear to be in the throat to complicate the diagnosis or management.

The management of tic douloureux, exemplified by the contemporary Spiller-Frazier dorsal root section is attended by permanent sensory disability in the face that is more profound than is commonly appreciated. This disability may be materially reduced or averted by a decompression of the dorsal root at the point it enters the temporal fossa. An analysis of the results in a consecutive series of thirteen patients is presented.

Spontaneous remissions are characteristic. These are variable and unpredictable periods that vary from hours to years in which the pain is absent and the dolorogenic areas are inoperative. Neurological deficits that are not attributable to previous therapy should suggest a different diagnosis, such as multiple sclerosis, an angle tumor, metastatic malignancy, or a primary tumor of the ganglion.

Paroxysmal lancinating pain that is associated with dolorogenic areas and unassociated with neurological deficits is sufficiently characteristic to make a diagnosis of tic douloureux. Excepting the much more rare, but related, neuralgias of the geniculate ganglion, glossopharyngeal and vagus nerves, and sphenopalatine

* Presented at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.

ganglion, these features are absent in other neuralgias. When the paroxysms are fleeting and evanescent, or circumstances interfere with verification, then diagnostic difficulties may arise. Atypical facial neuralgias may cause confusion until the diagnosis is confirmed by temporary palliative procedures. These are an aggregate of nondescript facial pains commonly attributed to psychological causes.

Anatomy

The trigeminal nerve arises in the posterior fossa from the pons. It consists of two nerve roots, a large sensory or dorsal root, and a much smaller motor or ventral root. The nerve passes forward to the apex of the petrous pyramid where it passes beneath the tentorium cerebelli and the superior petrosal sinus to enter the middle cranial fossa. At this point the fibers rapidly enter the gasserian ganglion and emerge as the ophthalmic, maxillary, and mandibular divisions of the trigeminal nerve. The ganglion is encased by the dura of the middle fossa. The ophthalmic division passes forward through the lateral wall of the cavernous sinus where it crosses the carotid artery, and enters the superior orbital fissure. The ophthalmic fibers closely parallel the oculomotor nerve and trochlear nerve in the posterior fossa and in the cavernous sinus. The maxillary division enters the foramen ovale, crosses the pterygoid fossa, and then maintains a close relationship to the antrum. The earliest surgical attempts to excise the gasserian ganglion were made through the maxillary antrum, to be frequently thwarted by complications involving the cavernous sinus and carotid artery. The middle meningeal artery enters the skull through the foramen spinosum. In the contemporary transtemporal extradural approach to the gasserian ganglion, the foramen spinosum is the guide to the foramen ovale, the exit of the mandibular division of the trigeminal nerve.

History

Tic pain may be abolished by interruption of the sensory innervation of the dolorogenic area. Peripheral neurectomy (1730) and coagulative nerve blocks (1732), exemplified now by the use of alcohol (1904), evolved as the earliest therapeutic measures to provide certain relief of tic pain. The relief afforded by these measures was temporary, but repeatable. As surgical management expanded to the formidable gasserian ganglionectomy and then to the more benign dorsal root section, these palliative procedures were exploited to the point of failure to postpone the newer and more major surgical procedures. Alcohol blocks, however, have not been entirely innocuous. Complications as serious as multiple cranial nerve deficits and ophthalmoplegias have been encountered.

These have been attributed to contamination of the spinal fluid with alcohol.

The mortality with gasserian ganglionectomy (1856) was formidable (22 per cent) for a nonfatal condition. As the transantral approach was replaced by the transtemporal extradural ganglionectomy, the surgical accessibility of the dorsal root fibers became apparent and prompted the development of the popular contemporary Spiller-Frazier dorsal root section (1901). Corneal complications led to the preservation of the ophthalmic division (subtotal section), and then the motor root was spared to maintain the integrity of the muscles of mastication. To afford the maximum preservation of sensation consistent with relief, a more conservative and selective dorsal root section was advocated. Hemorrhage from the middle meningeal artery and friability of the dura that often led to trauma to the temporal lobe during retraction were the major surgical hazards encountered with the Spiller-Frazier operation. The mortality was low (less than one per cent), and repetition of the dorsal root section was acceptable to avoid the more undesirable sensory residuals and complications.

While dorsal root section was attended by such infrequent complications as deafness, facial palsy, and ophthalmoplegias, the disability due to anesthesia was constant and permanent. Analgesia of the cornea, enhanced perhaps by trauma and corneal drying, sometimes led to both early and late keratitis that progressed at times to corneal scars, perforation of the globe, and blindness. A lot could be done to avert the ocular complications through the use of protective glasses, a persistent routine of ocular hygiene, and a vigilance that is annoying and objectionable to an aging, often forgetful, and frequently rigid patient group. Since the ophthalmic division is infrequently involved, the corneal problem could be avoided by preservation of the ophthalmic division. Paresthesia, dysesthesia, and anesthesia of the face create a more profound disability than is commonly appreciated. Unilateral loss of the motor root is acceptable until, as in bilateral tic douloureux, the prospect of total paralysis of the muscles of mastication must be faced as a reality. Bilateral facial anesthesia requires practice before a mirror to re-establish the most fundamental facial functions.

Less popular procedures were subsequently developed. A suboccipital approach through the posterior fossa was developed by Dandy, who advocated a selective type of section that would produce hypesthesia rather than anesthesia. A study of vascular lesions involving the medulla directed attention to the descending trigeminal tract extending into the uppermost segments of the spinal cord. A section of this tract at the medullo-cervical junction produced

disassociated loss of pain and temperature sensation in the trigeminal area. It was advocated over other procedures for bilateral ophthalmic tic douloureux to avoid the corneal complications.

Taarnhøj (1954) recommended decompression of the trigeminal root for the relief of tic douloureux. Through a subtemporal intradural approach the gasserian ganglion was unroofed, and the tentorium was sectioned through the tentorial notch. Sensory changes were averted or materially reduced.

Neurolysis

A subtemporal extradural approach is utilized (*Figure 1*). A pledget of cotton is inserted into the foramen spinosum, and the middle meningeal artery is divided at the level of the foramen and coagulated (*Figure 2*). The foramen ovale is located, and a cleavage plane is established in the dura at this point. This is carried upward and backward until the dura propria is exposed and the fibers of the dorsal root are visible. The dura is opened at this point to expose the tentorium at the point of entrance of the dorsal root fibers (*Figure 3*). The incision is now carried through the foramen of entrance of the nerve root and then deep into the tentorium toward the tentorial notch (*Figure 4*). The course of the trochlear nerve closely parallels the tentorial notch and must be avoided. The oculomotor nerve may enter the cavernous sinus in proximity to the ophthalmic division and is to be avoided if the dorsal root fibers are gently rearranged with a blunt hook.

Results

Thirteen operations were completed between 1957 and 1964. Eight of these responded to a recent written inquiry, and one (Case 8) was interviewed by telephone. In three of the four nonrespondents the results were known or could be verified. Only one (Case 13) could not be traced. Therefore conclusions regarding the long term results could be drawn from 12 of the 13 cases.

Death intervened in two cases. Both received persistent relief of pain. Case 3 expired suddenly and unexpectedly three weeks after his surgery. The massive aspiration of vomitus after a heavy meal was established by autopsy to be the cause of death. The second death (Case 6) occurred nearly three years after surgery and was attributed to natural causes.

Three complications were encountered in the series. Two (Cases 8 and 11) developed a transient third nerve paresis, which recovered promptly and completely in both instances. One (Case 13) developed a postoperative extradural hematoma, from which the patient recovered promptly and completely after it had been evacuated.

There were two failures (Cases 2 and 10) in the series. The first (Case 2) was in reality an atypical facial neuralgia, which does not respond well to any surgical procedure for the relief of pain. The pain in this case was around and behind the right eye. The presence of a trigger area could not be established with certainty and palliative novocaine blocks produced conflicting responses. Neurolysis was undertaken with the understanding that the chance of relief was indeed slim, and the operation was an immediate failure. This case, therefore, cannot be regarded as a true measure of the ineffectiveness of neurolysis for the relief of true tic pain. Case 10 appeared to be a valid recurrence. A trigger area and tic pain reappeared in this case 16 months after the neurolysis, for which an avulsion of the infraorbital nerve was performed elsewhere. As a matter of interest, this patient regarded neurolysis as a complete success since the pain triggered from an area and followed a pattern that differed from the original attack.

The pain in tic douloureux is unbearable and leaves the afflicted with no choice short of relief. Narcotics are ineffective and addicting. Medical management has been unable to meet the demands of the acute, severe, unrelenting attack. The temporary palliative disruptions of the peripheral ramifications of the trigeminal nerve by coagulation, section, or avulsion are attended by anesthetics, dysesthesia, the horror of inevitable recurrence, and the fear of ultimate failure. Dorsal root section, while it offers permanent and lasting relief, is attended by the most widespread and irreversible sensory changes which make it a poor final choice. The patient would prefer to retain normal or near-normal sensation in the head, face, and mouth.

Taarnhøj introduced dorsal decompression of the gasserian ganglion coincident with the appearance of a variety of procedures representing a radical departure from the well established dorsal root section. These events rekindled an interest in the etiology of tic douloureux, and a reconsideration of the factors necessary for permanent and lasting relief. Some adopted the procedure in a modified form. There were those who advocated gentle rearrangement of the dorsal root fibers with a blunt hook, while others insisted some degree of persistent hypalgesia was essential for success. As the author adopted the procedure, the gasserian ganglion was initially purposely traumatized, whereas later the trauma was not carefully avoided. Sensory disability therefore appeared in this series, both as the result of antecedent alcohol nerve blocks as well as the neurolysis. For example, one patient with anesthesia of the upper lip and ala of the nose from interruption of the infraorbital nerve with alcohol carried a handkerchief over

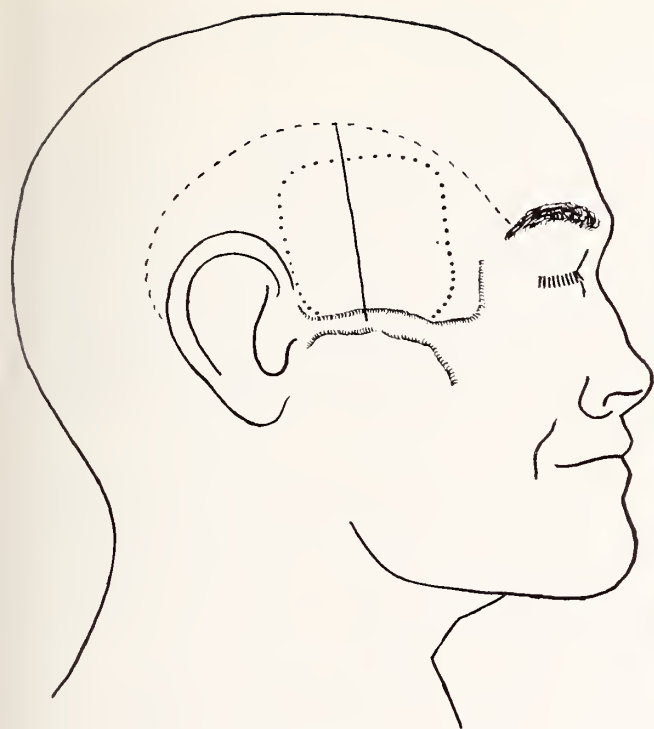


Figure 1

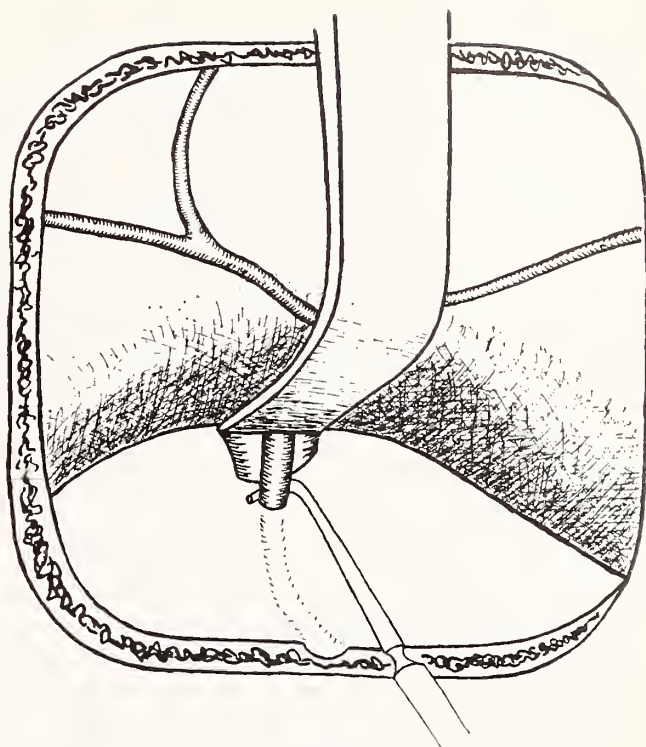


Figure 2

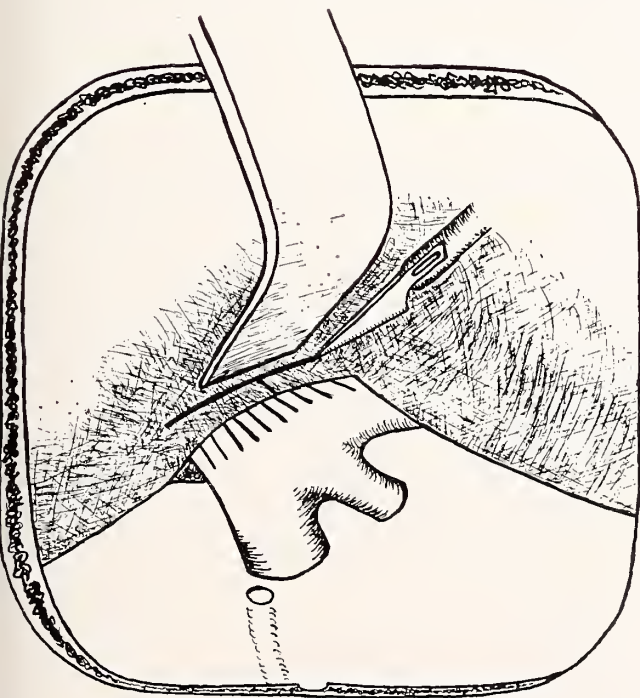


Figure 3

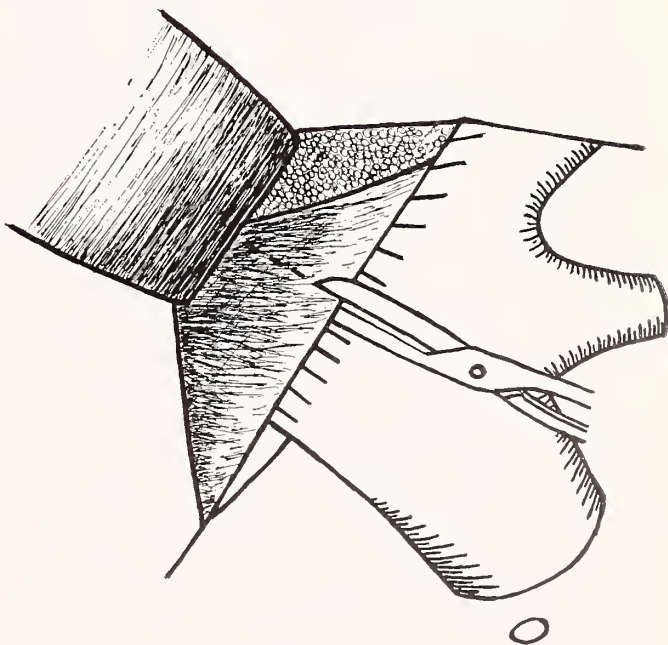


Figure 4

the anesthetic area for more than a year for fear nasal secretions would appear without notice to produce embarrassment. Special attention was given to the reaction of the patient to this sensory disability (Table 1). The disability was graded on the basis of negligible, mild, moderate, severe, and intolerable sensory changes. The propensity of their reaction indicates a strong desire to have normal or near-normal sensation after surgery.

Nevertheless, all would accept sensory disability for the relief of pain, and one with a knowledge of the results from dorsal root section indicated a specific preference for neurolysis.

Discussion

The cause of tic douloureux remains an enigma. Taarnhøj felt the paroxysms of pain were due to kinking of the dorsal root fibers as they left the posterior fossa. It has been well established that the pain of tic douloureux may be abolished by tractotomy (interruption of the descending tract of the trigeminal nerve in the medullo-cervical area), dorsal root section, gasserian ganglionectomy, and interruption of the trigeminal nerve peripheral to the ganglion. In many surgical procedures designed to relieve pain by interruption of the pain pathways, the section must be proximal to the origin of the painful stimulus. The inability to fully comprehend the pathophysi-

ology of tic pain has contributed to the perpetuation of the etiological enigma.

In rare instances, an ostensibly complete section of the dorsal root has not provided relief of pain. In these instances, some neurosurgeons have provided relief by resectioning the dorsal root through a posterior fossa approach. In the popular modification of the original Spiller-Frazier operation, every effort is made to preserve sensation in the cornea by maintaining the integrity of the ophthalmic division. In some subtotal sections the trigger area and paroxysms of pain will migrate into the ophthalmic division and necessitate an extension of the original dorsal root section.

While the series herein reported is small in number it is not devoid of depth in time. Some have remained free of pain throughout the period covered by the study. In this small series, more than 90 per cent of those afflicted with true tic douloureux received lasting relief of their pain. The incidence of pain relief with neurolysis would therefore appear to compare favorably with the relief obtained by dorsal root section but offer the advantage of a reduction in persistent sensory disability.

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TABLE 1

<i>Case</i>	<i>Age</i>	<i>Date of Operation</i>	<i>Division Involved</i>	<i>Reaction to Sensory Disability</i>
RESPONDENTS				
1	62	8-31-57	II & III	Moderate
4	32	5- 5-58	III	
5	54	5-20-60	II	Mild
7	47	1-16-61	III	Severe
8	74	5-24-61	II	
9	63	6- 4-61	II	Moderate
10	71	5-25-62	I & II	
11	34	1-11-62	II & III	
12	73	8-13-63	II	Severe
NON-RESPONDENTS				
2	48	4-30-58	Retrobulbar	Atypical facial neuralgia
3	74	4-30-58	II & III	Expired 5-20-58, aspiration
6	72	9- 3-60	II (bilateral)	Expired 1963, natural causes
13	60	10-23-64	II & III	Unable to trace

The Parotid Gland

Surgical Management of Parotid Tumors

DONALD W. SELZER, M.D., and CHARLES S. JOSS, M.D., *Topeka**

SURGICAL TREATMENT of parotid tumors provides a challenging and difficult situation for the practicing surgeon. A considerable proportion of these tumors are malignant. Figures ranging from 18 to 35 per cent^{1, 6} are reported in the literature. The non-malignant tumors of the parotid are mainly mixed tumors. These tumors recur in 35 per cent of cases⁵ in which they are removed by local excision, and the recurrences tend to undergo malignant transformation.^{2, 4, 6} Mixed tumors left untreated for long periods of time also tend to undergo malignant transformation.² Thus the need for aggressive surgical management of tumors occurring in the parotid gland is obvious.

The proximity of the facial nerve to the parotid gland and fear of injuring this structure with resultant facial paralysis has caused many surgeons to continue to neglect or mistreat patients with parotid tumors. Knowledge of the anatomy of the parotid gland and its relationships to the facial nerve³ and attention to a technique of exposing and preserving the nerve while removing the parotid makes adequate surgery possible and practical. Beahrs¹ has recently reported that recurrences of mixed tumors are practically nonexistent following parotidectomy with preservation of the nerve.

This report reviews the authors' experience with parotid tumors during the period January 1, 1959, to June 30, 1965. Twenty-four patients with parotid tumors were seen and treated during this time. There were seventeen females and seven males and the ages ranged from 13 years to 87 years. Most were in the sixth and seventh decades of life. Twenty benign and four malignant lesions were encountered.

The benign lesions were treated by superficial parotidectomy in all instances save one, in which case a total parotidectomy with preservation of the nerve was performed for a tumor lying deep to the nerve. Eighteen of the benign tumors were mixed tumors, while one was a Warthin's tumor and one was a hemangioma.

The malignant tumors encountered were two muco-epidermoid carcinomas and two anaplastic carcinomas. One of the muco-epidermoids was low grade and limited in extent and this case was treated successfully

by superficial parotidectomy. This patient is alive and well without evidence of recurrence four years since surgery. The other patient with muco-epidermoid carcinoma was an 87-year-old man with a very large tumor of the left parotid gland. Treatment had been denied him because of his advanced age and because of rather severe coronary artery disease. He had

A survey of the authors' experiences with 24 parotid tumors, of which four were malignant. Adequate care can protect the facial nerve where the lesion is benign, and part of the time when it is malignant. Surgical attack is the only effective treatment.

obvious metastases to cervical lymph nodes ipsilaterally. He was treated by radical parotidectomy with sacrifice of the nerve, neck dissection and postoperative radiation and is alive and well one year following treatment. The cell type was muco-epidermoid.

Both patients with anaplastic carcinomas were treated by radical parotidectomy with sacrifice of the facial nerve. Both also received postoperative radiation treatment. Each died one and three years following treatment. One of these patients was a 68-year-old Christian Scientist who had had a parotid tumor for many years with gradual enlargement through the years and rapid enlargement and hardening for a short time prior to admission. Clinically he presented a desperate situation and treatment was offered with little prediction of success.

Technically, these tumors are approached through a Y-type incision with an oblique incision extending from the mastoid prominence anteriorly and parallel to the mandible, joined in its mid-point by a vertical incision anterior to the ear. Skin flaps are elevated widely. The parotid gland is elevated under tension with hemostatic forceps along its posterior border and blunt dissection is carried deeply, anterior to the auditory canal, until the main trunk of the facial nerve is identified. Blunt dissection is then continued anteriorly, tearing the parotid substance away from

(Continued on page 420)

* Presented at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.

Duodenal Obstruction

Superior Mesenteric Artery Syndrome: A Simplified Surgical Approach

JOHN L. REESE, M.D. and J. H. HOLT, M.D., *Wichita**

IN 1849 ROKITANSKY first suggested that duodenal obstruction may result from compression by the superior mesenteric artery. Albrect described clinical cases in 1891. Since that time numerous case reports have appeared in the medical literature. Goin and Wilk reported one in 300 patients submitted to upper GI series for gastrointestinal complaints will have this syndrome. Bockus has stated he saw approximately three cases annually.

Unfortunately, many names exist for this entity. Among the more common are duodenal ileus, arteriomesenteric duodenal compression, duodenal stasis, Wilkie's syndrome, acute gastroduodenal dilatation, and gastromesenteric ileus. Recently, Barner and Sherman have introduced still another synonym, "Vascular compression of the duodenum."

Our interest in this syndrome was stimulated by a recent case for which we utilized a simplified surgical approach with success. Review of our record during the past seven years revealed one additional case similarly treated.

The following is an account of these cases and the method of treatment utilized.

Case Reports

CASE 1:

I. C., an 84-year-old white female, was first seen in surgery consultation October 5, 1964, for persistent postprandial vomiting, bloating, and epigastric pain relieved by vomiting. Seven days prior to consultation the patient had been operated for a fracture of the left hip wherein an Austin-Moore hip prosthesis was placed. The patient had remained at bed rest since surgery. She denied previous GI distress, other than fatty food intolerance, and recent weight loss. A flat plate of the abdomen revealed a dilated stomach (*Figure 1*), and gastric suction was instituted. Attempts to discontinue the suction and feed the patient were unsuccessful. An upper GI series re-

vealed complete obstruction at the third portion of the duodenum (*Figure 2*).

She was returned to surgery October 12, 1964, for relief of her duodenal obstruction. At operation a dilated duodenum was present to the level of the superior mesenteric artery. The stomach was dilated and edematous. An obvious visceroptosis was present with the point of duodenal obstruction lying between an atherosclerotic plaque in the left common iliac artery posteriorly, and the superior mesenteric artery anteriorly. A short transverse incision was made over the posterior parietal peritoneum covering the liga-

Two cases of superior mesenteric artery syndrome successfully treated by division of the ligament of Treitz with duodenal mobilization and downward displacement are presented.

Historical, etiological, and clinical aspects of the syndrome, as well as the anatomic nature of the duodenum as it pertains to the syndrome, are briefly discussed.

Due to the paucity of cases in the medical literature, statistically significant conclusions regarding this simplified surgical approach cannot be drawn.

ment of Treitz and this ligament divided and ligated. The superior aspect of the duodenum was then bluntly mobilized from the inferior pancreas over its distal third and fourth portions. The hepatic flexure of the colon was mobilized medially for additional exposure. Following these procedures the distal duodenum could be easily displaced downward and all signs of obstruction were relieved. The posterior parietal peritoneal incision was closed vertically and the abdomen closed.

The Levine tube was removed the third postoperative day and she was eating and having bowel movements by the fifth postoperative day. On the eighth postoperative day abdominal distention recurred wherein a Levine tube was placed for 24 hours

* Presented at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.

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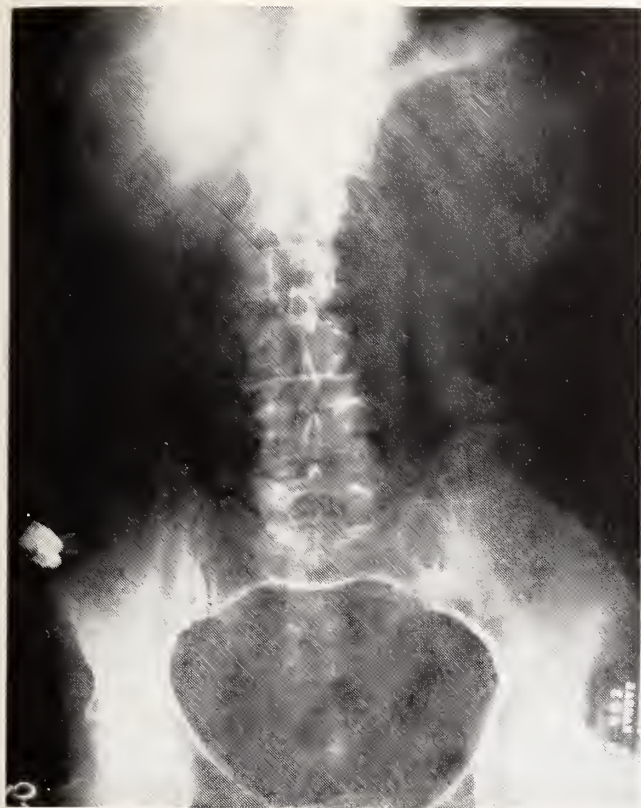


Figure 1. Case 1 showing preoperative extreme gastric dilatation with the inferior portion of the stomach lying within the pelvis.



Figure 2. Case 1 showing complete obstruction of the fourth portion of the duodenum. Barium fecaliths are visible from a previous barium enema.

after which it was removed and the patient placed on a progressive diet with satisfactory results. She continued to eat without vomiting throughout the remainder of her hospital stay.

Follow-up upper GI series done November 13, 1964, was reported normal with dye readily passing through the duodenaljejunal junction at fluoroscopy. In the 12 months following her surgery she has been followed in the outpatient department and no GI complaints have been noted.

CASE 2:

J. C., a 34-year-old white male, entered St. Francis Hospital November 22, 1958, complaining of episodic right upper quadrant pain with nausea present since a Bilroth I gastrectomy for duodenal ulcer done four months prior to admission. An upper GI series revealed a dilated duodenum without evidence of obstruction. Because of persistent symptoms with conservative treatment the patient was operated on December 1, 1958.

At surgery a dilated duodenum was present with compression of the third portion by the superior mesenteric artery. No adhesive bands or other causes of duodenal obstruction were present. Division of the ligament of Treitz with duodenal mobilization was done. The obstruction was relieved and the abdomen closed.

His postoperative course was complicated by narcotic addiction; however, he ate well without vomiting. He was discharged December 16, 1958. Unfortunately, he has been lost to follow-up.

Discussion

The true etiology of superior mesenteric artery syndrome remains obscure. Popular theories include (1) mal-rotation of the intestine, (2) anomalous take-off of the superior mesenteric artery from the aorta, (3) lordosis, (4) emaciation with loss of mesenteric fat, (5) a very relaxed, redundant, abdominal wall, (6) visceroptosis, and (7) a shortened ligament of Treitz. In short, any condition which increases the acuteness of the vascular angle formed by the aorta and the superior mesenteric artery may cause obstruction of the third portion of the duodenum. The common denominator in recorded cases has appeared to be the lanky, asthenic, patient with little mesenteric fat. Contributing factors have been mesenteric tautness and lumbar lordosis.

Symptoms primarily include episodic, postprandial, bile-stained emesis with associated epigastric fullness or pain. Migraine type headaches and a history of

neurosis are often present. In more severe cases malaise, neuralgia, anorexia, and fatigue intervene. Schumacher has described two forms of the disease: the chronic type as described above, and the acute type. The acute form occurs in patients without a previous history of GI symptoms and is precipitated by a prolonged period of immobilization necessitated by disease, injury, or operation. Patients forced to lie supine for long periods are particularly susceptible.

Correlation between superior mesenteric artery syndrome and peptic ulcer, cholecystitis, and pancreatitis has not been proven.

Diagnosis may be suspected clinically, however the primary requisite for diagnosis is x-ray evidence of dilatation and stasis of the third part of the duodenum.⁴ Anti-peristaltic activity may be seen, but is not pathomononic. Absence of barium retention does not exclude the syndrome since the duodenum may empty normally during quiescent periods. Goin has noted a functional obstruction of the third part of the duodenum in many normal patients, however all have released in the erect position in contrast to patients with the true syndrome. Tyson and Keegan have noted a correlation between the degree of release of obstruction when the patient was turned prone and the prognosis for medical treatment.

Jones, Carter, Smith, and Joergenson presented 14 cases of superior mesenteric artery syndrome in which four cases were re-operated because of failure to recognize the syndrome at surgery. Criteria for diagnosis at operation include (1) increased diameter of the duodenum greater than three to four centimeters after gastric insufflation of 200-300 cc. of air, (2) elevation of the cecum, transverse mesocolon, or small intestine with relief of the duodenal obstruction, (3) invagination of a finger from both sides of the obstructed duodenum to note the degree of compression cause by the root of the mesentery, and (4) a careful search for other causes of duodenal obstruction.

Treatment, as one might suspect, has been as diversified as the syndrome's etiologies. There is almost unanimity of opinion that once the diagnosis is made a trial of medical treatment is indicated. Medical management should consist of tube decompression, fluid and electrolyte correction, positioning to relieve the obstruction, abdominal exercises, and abdominal support. Some have recommended oral tube jejunostomy feedings in persistent cases.

Indications for surgery included (1) failure of a strict medical regimen to relieve symptoms or provide a weight gain, (2) preference of the patient for surgery to the inconvenience of a medical program, and (3) presence of associated diseases such as peptic ulcer or pancreatitis.

Gastrojejunostomy, colopexy, right hemicolectomy, and division of the duodenum with anterior anastomosis have all had their popular era. Bloodgood, in 1907, first proposed duodenojejunostomy as the operation of choice. Stavely first performed this operation successfully in 1908. This procedure has withstood the test of time and remains the most popular operation today.

In 1958 Strong advocated division of the ligament of Treitz with mobilization and downward displacement of the duodenum. Noted advantages were: reduced operating time, absence of open bowel contamination, and no late complications of malabsorption syndrome with steatorrhea. Major, Ottenhiemer, and Whalen, in 1960, presented a case similarly treated with good results.

In 1961, Martorell described a technique for duodenal mobilization and division of the Treitz ligament whereby he closed the periduodenal peritoneum vertically to ensure downward displacement of the duodenum (*Figures 3, 4, 5*). He speculated that contraction and hypertrophy of the ligament of Treitz may account for the superior mesenteric artery syndrome.

Anatomically, the third portion of the duodenum is the most fixed part of the alimentary tract. It lies retroperitoneally and is buttressed by the pancreas. It is in contact posteriorly with the aorta or vertebrae, and anteriorly with the root of the mesentery containing the superior mesenteric vessels. The superior aspect of the fourth portion or ascending limb of the duodenum is fused in an anatomic plane with the inferior pancreas. The ligament of Treitz, arising from the right crus of the diaphragm fuses with the muscle wall of the fourth portion of the duodenum and acts as a suspensory ligament. Thorek has pointed out that this ligament is in reality a muscle which must be ligated when divided because of its muscular vascularity.

Because of this fixation, any factor which increases the pincer angle formed by the superior mesenteric artery and the aorta favors the development of the obstructing syndrome.

Barner and Sherman in a recent review of the literature noted 71 per cent good results with surgical treatment. Seventy-nine per cent of patients treated by duodenojejunostomy were successful. The paucity of cases treated by division of the Treitz ligament with duodenal mobilization does not allow one to establish statistically significant results.

We would like to add our two cases to those of Strong, Major, and Martorell, and recommend this procedure as a safe, simple and more physiologic method of treating Superior Mesenteric Artery Syndrome.

Figure 3. Simplified surgical correction—Step 1: The transverse colon is reflected superiorly demonstrating vascular compression of the duodenum. The Treitz ligament has been superimposed for clarity.

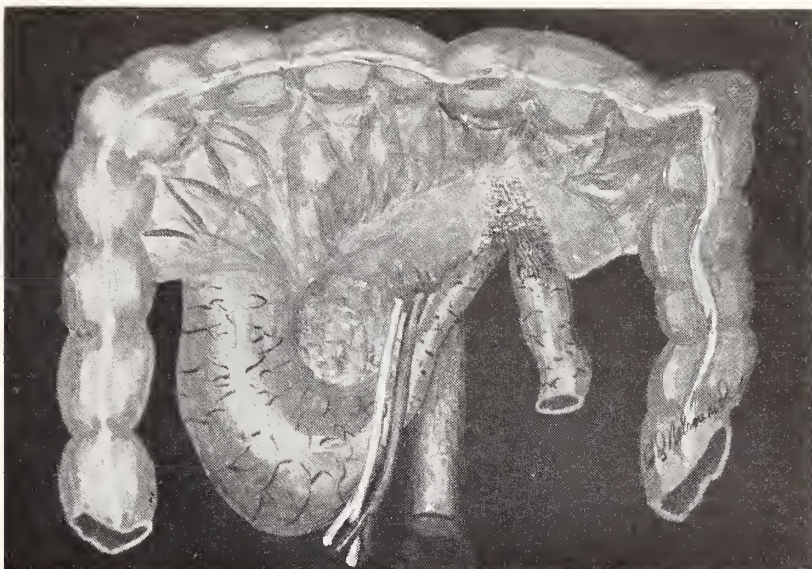


Figure 4. Simplified surgical correction—Step 2: Transverse division of the posterior peritoneum and muscular Treitz ligament with blunt mobilization of the fourth portion of the duodenum along the dotted line.

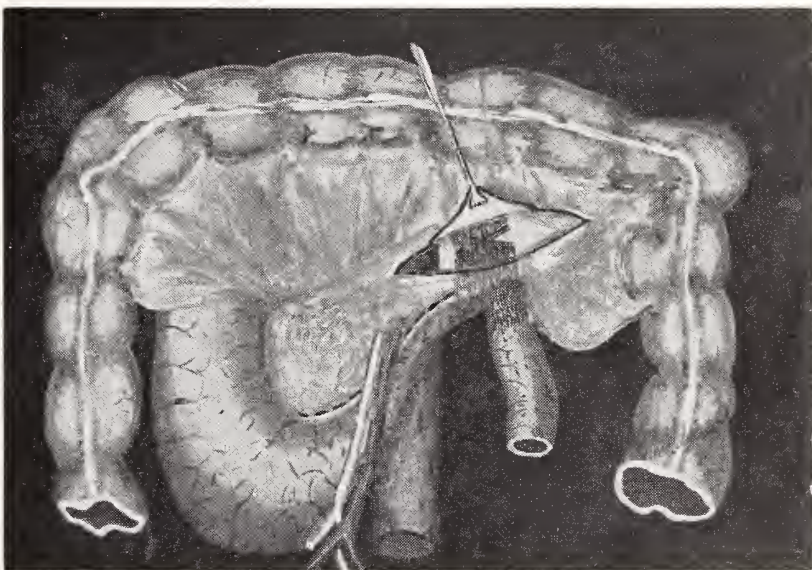
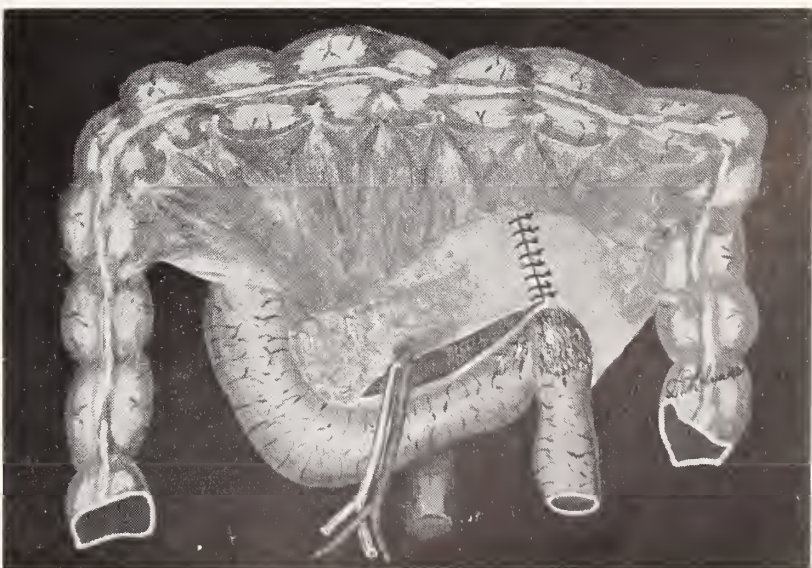


Figure 5. Simplified surgical approach—Step 3: Downward displacement of the duodenum with relief of the obstruction. Downward displacement is maintained by vertical closure of the posterior peritoneum.



Acknowledgements

I would like to thank Dr. Gerald Nelson, a fellow surgical resident, for his excellent medical illustrations, and Dr. E. S. Brinton for the use of Case 2.

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The Parotid Gland

(Continued from page 415)

the nerve, and thus removing the superficial portion of the gland. We have found no anatomic division between the superficial and deep portions of the parotid. For tumors lying deep to the nerve the nerve is freed up, and the parotid tissue removed from beneath it by blunt and sharp dissection. We have not found the use of dyes injected into Stenson's duct to be of particular benefit in identifying the facial nerve.

There have been no surgical deaths. Complications have been limited. One patient had a salivary fistula which closed spontaneously in about 30 days. One patient had transient weakness of the marginal mandibular branch of the facial nerve which has completely cleared.

This study has demonstrated the potential danger of parotid tumors and also illustrated the transformation of an apparent benign tumor into a malignant one. It also points out that adequate surgery of the

parotid gland is practical and can be carried out with negligible risk of facial nerve damage.

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BEAT THE HEAT

Is the heat wearing you down?

It's hot in most of the United States in mid-summer. In the desert and in the south, it's even hotter, but by late July and August it's often hot even in the mountains. Regardless of whether one blames the heat or the humidity, it's still hot.

There's nothing you can do about the outside temperature. Unless you're fortunate enough to have an air conditioned office of shop, home and auto, there's nothing much you can do about it inside either. But there are some things you can do to be more comfortable—things that can help you beat the heat.

Stay out of the sun as much as possible, especially during the middle of the day when the rays are hottest. Wear light, loose clothing, the less the better. The ladies have an edge over the men in this respect. Drink more liquids than usual, but take extra salt only on your physician's advice, particularly if you have liver or kidney trouble or a heart condition.

Take a shower or dip in the pool once or twice a day to cool off. Get plenty of rest and sleep. Eat your regular diet and don't go overboard on cold cuts and salads unless you like them anyway.

Get up early in the morning to do your heavy work on the lawn or garden. Or work at dusk in the evening, but try to avoid heavy exertion during the hottest hours of the day.

You need exercise in the summer as well as in the winter, but don't overdo it, especially on extra hot days. Don't overdo physical exertion, whether at work or play.

The more relaxed outdoor life of the summer months has many advantages to compensate for the heat. Stay relaxed and use common sense, and you can beat the heat—at least somewhat.—AMA Health and Safety Tips

Gastric Surgery

The Roux-en-Y Procedure for Bile Esophagitis

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Kansas City, Kansas, and SEBEL HANDS, M.D., *Amarillo, Texas**

SEVERE ESOPHAGITIS SECONDARY to gastroesophageal reflux following partial gastrectomy has been discussed by several authors during the past decade. Wells and Kyle attributed this complication to hiatus hernia not always noted preoperatively, but it may occur in the absence of a hiatus hernia. Of the 61 unselected postgastrectomy patients studied by Windsor, 16 had reflux esophagitis, but of these only six had hiatus hernia.

Although postgastrectomy esophagitis is generally termed reflux esophagitis it is more accurately a bile esophagitis, particularly where gastric resection has been adequate and has been associated with vagotomy. In such cases, gastric acid is minimal and bile is invariably demonstrable in the esophagus. Cross and Wangenstein in 1951, and more recently Lambert, produced esophagitis experimentally with bile and pancreatic juices in the absence of acid or pepsin.

The symptomatology and objective appearances of bile esophagitis are identical with those of acid peptic esophagitis, showing all stages from edema and redness to ulceration and stricture. The only difference is the presence of bile in the former. Milder cases are controllable with conservative measures. Severe and intractable cases may be cured with a Roux-en-Y gastrojejunostomy. This procedure was described by Holt and Large as a treatment for the reflux esophagitis which followed the Heller operation used in treatment of esophageal cardiospasm. More recently these authors describe the use of the Roux-en-Y gastrojejunostomy in treating the esophagitis which complicates the short esophagus syndrome.

We have used the Roux-en-Y gastrojejunostomy in three patients with bile esophagitis following gastric surgery for peptic ulcer. One of these patients had a hiatus hernia. The afferent loop of the Roux-en-Y was joined end-to-side to the efferent limb about 18 inches distal to the gastrojejunal anastomosis. This length suffices to prevent regurgitation of bile into the stomach and esophagus through the incompetent gastroesophageal junction.

The post-gastrectomy patient with bile esophagitis may be identified by regurgitation of bile, or by find-

ing esophagitis with bile reflux on endoscopic examination. If gastrectomy has been adequate and has included vagotomy, total gastric acidity is low and free acid is not stimulated by insulin. Radiographic examination will demonstrate reflux with or without hiatus hernia. In differential diagnosis, the Zollinger-Ellison syndrome and recurrent peptic ulcer must be considered. These conditions will show high total acidity and the presence of free hydrochloric acid. The afferent loop syndrome and the dumping syn-

The problem of intractable bile esophagitis following gastric surgery is discussed. Three patients are presented who were cured by the Roux-en-Y procedure. The rationale for this operation is outlined.

drome may accompany bile esophagitis, but are easily differentiated.

The basis of gastroesophageal incompetence after gastric surgery is not entirely understood. Loss of tone in the intrinsic sphincter mechanism of the lower esophagus is said to occur. In animals, Clark and Vane demonstrated reduced efficiency of gastroesophageal closure when alkaline fluid was present in the lower esophagus. Stanner and Williams implicated anemia as an important factor, but this is not always present. Several authors have suggested that opening of the gastroesophageal angle during mobilization of the stomach at the time of gastrectomy tends to funnel the cardia of the stomach and allow reflux to occur (*Figure 1*). This deformity is increased by Billroth I reconstruction because of the abbreviated greater curvature required to permit approximation of stomach to duodenum. In the Billroth II procedure the jejunum can be brought up to the stomach for anastomosis, and less gastric mobilization is required. In our three cases, conversion of Billroth II to Billroth I closures failed to cure esophageal reflux. Windsor obtained radiologic reflux in 50 per cent of his Billroth I cases and in 29 per cent of his Billroth II cases.

* Presented at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.

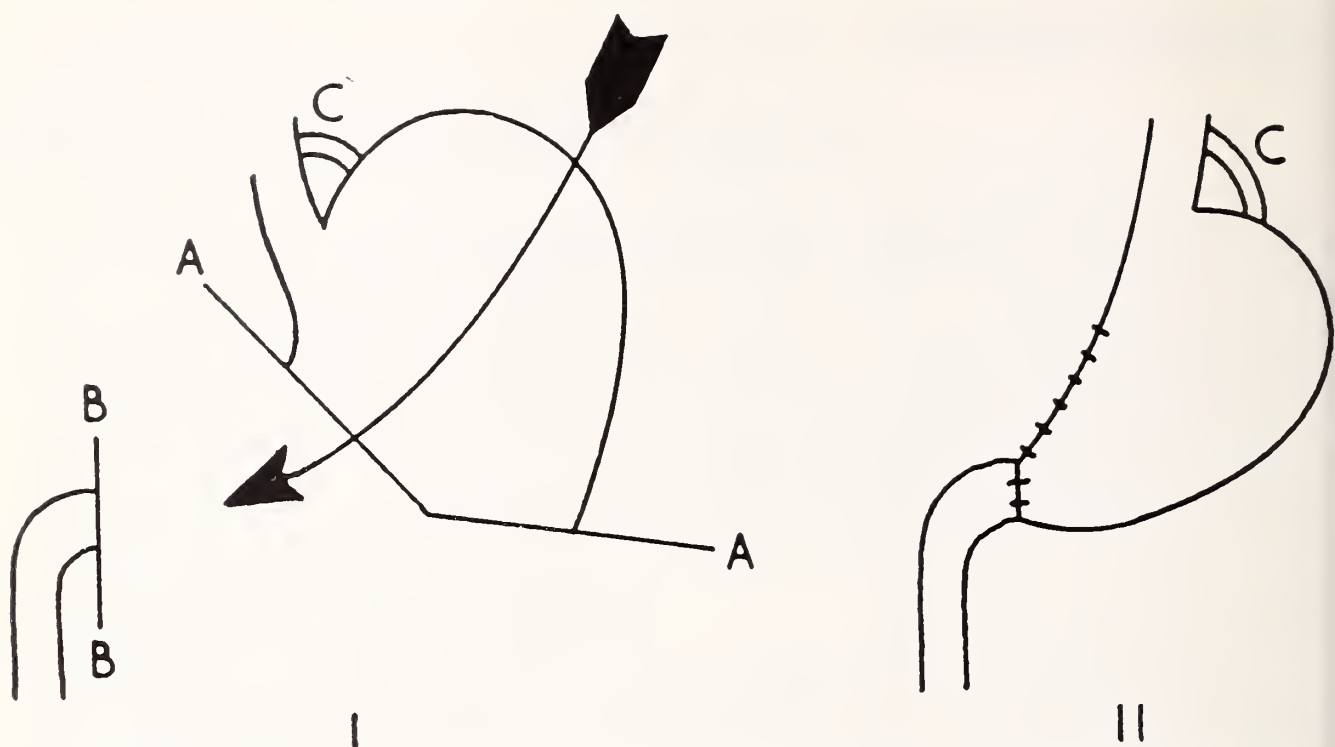


Figure 1. I. A is the line of gastric division, B the line of duodenal division, and C the gastroesophageal angle. The arrow indicates the direction of swing about the cardia which is allowed after division of the left gastric and greater-curve blood-vessels. II. This shows the end-result of the Billroth I partial gastrectomy. The cardia has moved towards the right and the gastroesophageal angle has opened out.

In our limited experience, as in that of Windsor, reflux is aggravated by conversion to a Billroth I operation. Notwithstanding older teaching, such a conversion procedure designed to restore normal continuity of the gastrointestinal tract is not the best method for alleviating reflux esophagitis. In the rare instance when bile esophagitis follows gastric surgery we advocate initial use of the Roux-en-Y procedure for correcting this condition with less likelihood of further difficulty and additional operations.

✕ The possibility of neostomal peptic ulcer following the Roux-en-Y technique must be considered. Prevention requires either removal of a sufficiently large portion of stomach to decrease acid secretion greatly or the performance of vagotomy. In a ten-year follow-up of 15 patients, Large encountered no stomal ulcers in vagotomized patients. It is our practice to perform vagotomy as additional protection when using the Roux-en-Y procedure.

Case Reports

CASE 1. (Figure 2):

C. F. Age 41, thin, white, male mechanic who first developed ulcer symptoms in 1955. In July, 1958,

C. F. was hospitalized because of a perforated ulcer which was closed. In September, 1958, he had a vagotomy and hemigastrectomy with antecolic Hofmeister, Billroth II anastomosis. He did well for about two months and then developed symptoms of esophagitis with regurgitation of bile. X-ray in 1959 showed hiatus hernia with reflux and a normally functioning gastrojejunal stoma. Esophagoscopy revealed an edematous and inflamed mucosa and the observation of reflux of bile into the lower esophagus.

In June, 1960, the patient had a conversion of Billroth II to a Billroth I and repair of hiatus hernia. Again the patient had only temporary relief. Epigastric burning with regurgitation of bile became almost routine on recumbency, and while straining at work. Conservative measures were used with some help but symptoms continued to interfere with his work and sleep. The Roux-en-Y operation was proposed which the patient accepted.

Before surgery x-rays showed no hiatus hernia but reflux was demonstrated. Endoscopic examination revealed the same findings as were previously demonstrated with the presence of bile in the stomach and in the esophagus. Gastric analysis was negative for free hydrochloric acid on repeated insulin stimulation

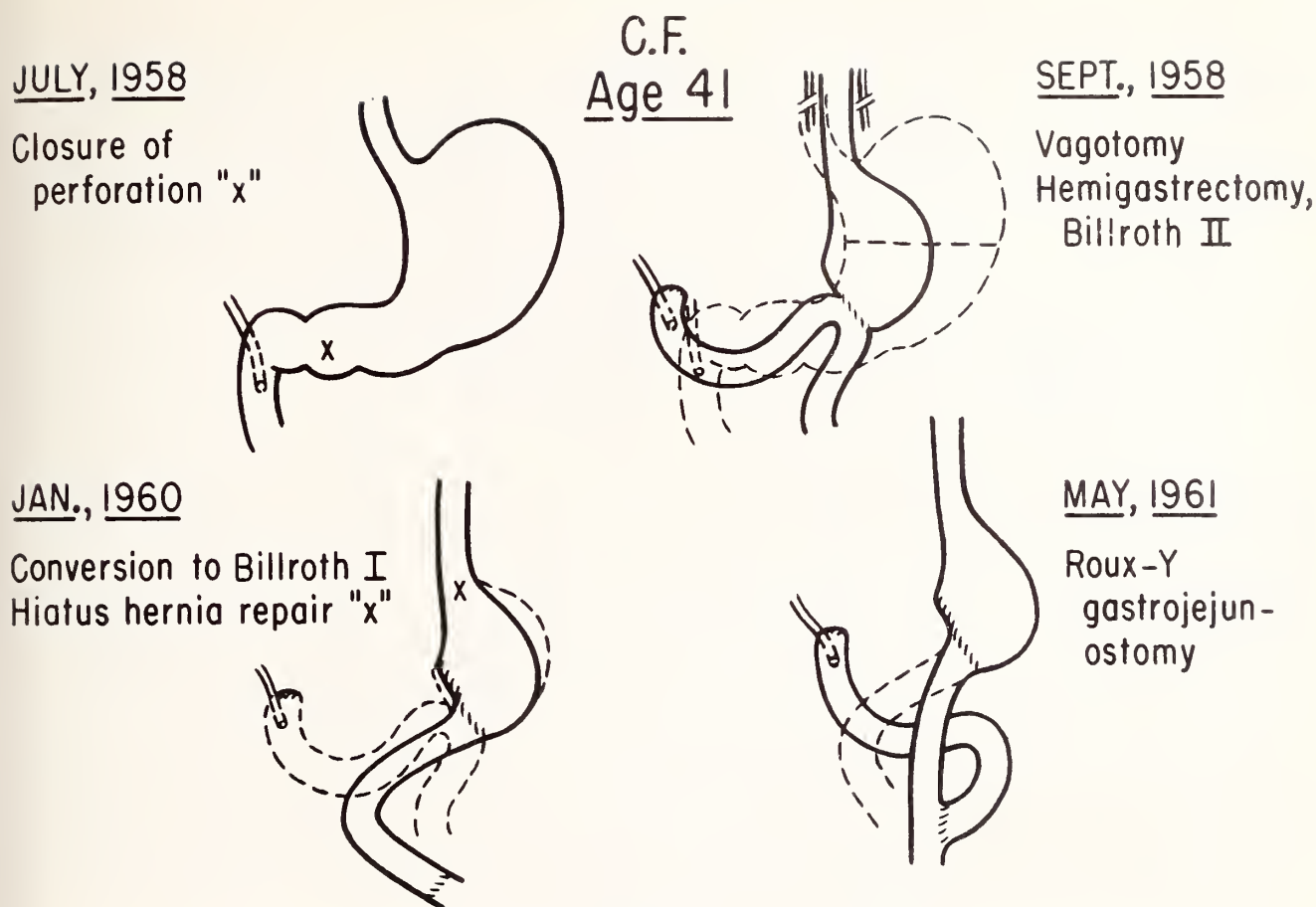


Figure 2

and the total acidity was 12 degrees or less. Following the Roux-en-Y procedure in May, 1961, the patient has had no recurrence of esophagitis or regurgitation of bile. Recent communication with the patient reveals the patient to have gained 20 pounds in weight and is free of any symptoms.

CASE 2. (Figure 3):

H. H. Age 46, white, slender, male rancher who had a vagotomy and pyloroplasty in 1948 because of duodenal ulcer. In 1959, because of recurrence and intractable ulcer, a three-fourth resection with a Billroth II antecolic Hofmeister anastomosis was performed. Since that operation the patient had been mostly incapacitated and had repeated hospitalizations because of dumping syndrome and esophagitis. The dumping syndrome could be controlled with diet but the most distressing symptoms were that of substernal burning and regurgitation of bile. Endoscopic examination revealed moderately inflamed and granular esophageal mucosa and the presence of bile. In January, 1960, a conversion operation from Bill-

roth II to Billroth I was performed to establish normal continuity in the gastrointestinal tract. However, the patient soon had the recurrence of esophagitis and regurgitation of bile even more severe than before. During the following year the patient was unable to lie flat without experiencing regurgitation of bile. Esophagitis progressed to the degree of producing pain and dysphagia. Endoscopic examination revealed bile, severe esophagitis, and narrowing of the lower esophagus. Gastric analysis was negative for free hydrochloric acid on insulin stimulation. Total acidity was less than 15 degrees. X-rays showed no hiatus hernia and no stomal obstruction.

The patient readily accepted the Roux-en-Y procedure which was performed in September, 1961. After surgery the patient remarked that it was the first time in over a year he had been able to sleep lying flat in bed. After four years he has had no regurgitation of bile or symptoms of esophagitis. He has gained over 30 pounds in weight. The dumping symptom occurs only if he indulges in concentrated sweets.

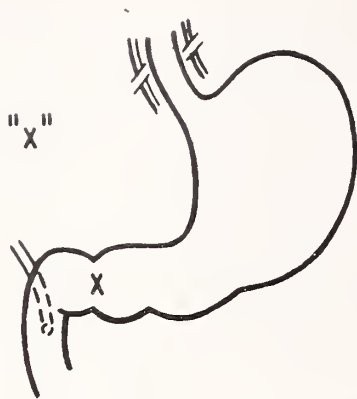
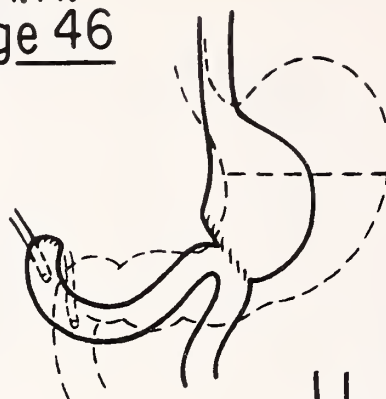
1948Vagotomy
Pyloroplasty "x"H.H.
Age 46JAN., 1959Subtotal
gastrectomy,
Billroth IIJAN., 1960Conversion to
Billroth ISEPT., 1961Roux-Y
gastrojejun-
ostomy

Figure 3

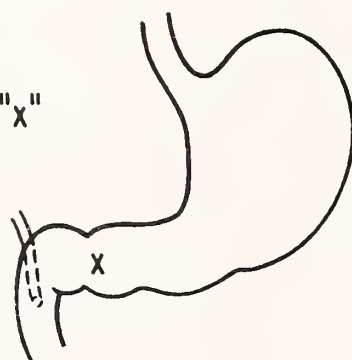
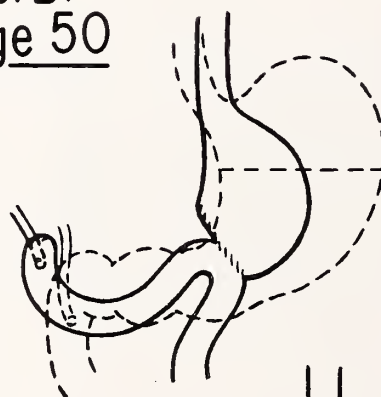
1956Closure of
perforation "x"C.B.
Age 5019582/3 Gastric
resection,
Billroth II19603/4 Gastric resection,
conversion to Billroth I
Vagotomy1964Roux-Y
gastrojejun-
ostomy

Figure 4

CASE 3. (Figure 4):

C. B. Fifty-year-old, white, male steeplejack who has had recurrent duodenal ulcer since 1942. In 1956 he had a closure of a perforated duodenal ulcer. In December, 1958, because of recurrence of the ulcer, a subtotal gastric resection with a Billroth II anastomosis was performed. In November, 1960, because of continued gastritis, esophagitis and dumping syndrome the patient was submitted to further gastric resection with a conversion of the Billroth II to a Billroth I anastomosis and a vagotomy. Since the operation in 1960 the patient has been unable to work steadily and has had numerous hospital admissions for esophagitis and dumping symptoms. He had learned to control the dumping symptoms but his main difficulty has been substernal burning and the regurgitation of bile. X-ray showed no hiatus hernia but gastroesophageal reflux. The stomach showed rapid emptying. Gastric analysis was negative for hydrochloric acid on insulin stimulation. Esophagoscopy was not performed on this patient. However, because of the severe disability the patient readily accepted the Roux-en-Y procedure which was performed in October, 1964. This surgery was complicated by a wound infection which gradually cleared. It is now one year since the operation and the patient has had not one recurrence of esophagitis or

regurgitation of bile. The dumping symptoms are also much improved.

Acknowledgement

The authors wish to thank Dr. Sam Zelman for his assistance in the preparation of this paper.

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Barium Peritonitis

A Rare Complication Following GI Studies in Which Barium Is Used

ARLEN D. WINSKY, M.D., and
FRED W. ROBINSON, M.D., *Wichita**

BARIUM PERITONITIS is a rare complication of gastrointestinal studies utilizing barium. Lorinc reported only two cases of extraperitoneal perforation in more than ten thousand barium enemas. It is possible, however, that this complication is not as rare as the few reported cases would indicate. Zheutlin was able to collect 50 previously unreported cases of barium peritonitis following a barium enema by sending questionnaires to 100 institutions. This complication has been reported most often following a barium enema.

A case of barium peritonitis following a barium enema successfully treated at the Wichita Veterans Administration Center Hospital, stimulated interest in this problem.**

Case Report

A 55-year-old white man was admitted August 13, 1963, with abdominal pain, nausea, vomiting, tarry and bloody stools. His illness began ten days before admission with abdominal cramping. Bloody diarrhea began seven days prior to admission. On examination he was afebrile but quite ill with a pulse of 92 and blood pressure of 190/110. His abdomen was soft, slightly distended and tender over a movable mass four inches in diameter in the left lower quadrant. There was no rebound tenderness and bowel sounds were present. Blood and brown stool were present in the rectum. During the subsequent 24 hours he vomited several times. The colon became palpable and bowel sounds were hypoactive. Five days after admission a barium enema was performed (*Figure 1*). The left colon filled to the mid-descending portion where a large, round defect blocked further passage of barium. The colon proximal to this point was distended with air. Two days later a right transverse colostomy was performed for decompression. A large, freely movable, oval mass was present in the left colon. Two days after operation the mass

was no longer palpable and the patient was passing stool per rectum. On the seventh postoperative day a repeat barium enema was performed. This time barium flowed freely to the splenic flexure, then suddenly entered the peritoneal cavity (*Figure 2*). The patient rapidly developed severe abdominal pain, absent bowel sounds, rebound tenderness and hypotension. He was treated with vasopressors, colloid

We have presented a representative case of barium peritonitis with a review of the available literature. It appears that there is a definite risk involved with the use of bulb catheters for the introduction of barium into the colon, especially when rectal disease is present, and in children or the aged. The mortality and morbidity is high, and the complication can occur in the hands of experts.

We believe more courageous reporting of this unfortunate occurrence might change our thinking and improve our methods of prevention and treatment. For the time being, we recommend surgical exploration within three hours. The source of continuing contamination should be removed and irrigation, aspiration, decompression and drainage should be carried out. The surgical treatment must be supplemented by vigorous supportive therapy.

and blood. Abdominal exploration revealed a large amount of barium in the peritoneal cavity and a mass in the upper descending colon with perforation. As much barium as possible was removed from the abdominal cavity. The cavity was then drained and the mass was exteriorized through the incision. The incision was closed with wire and the mass was resected, leaving clamps applied to the cut ends of the colon. His postoperative course was very stormy. At

* From the Veterans Administration Center, Wichita, Kansas.

Presented by Dr. Winsky at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.

** Surgeon, Tyler Coomer, M.D., Chief Surgical Resident.

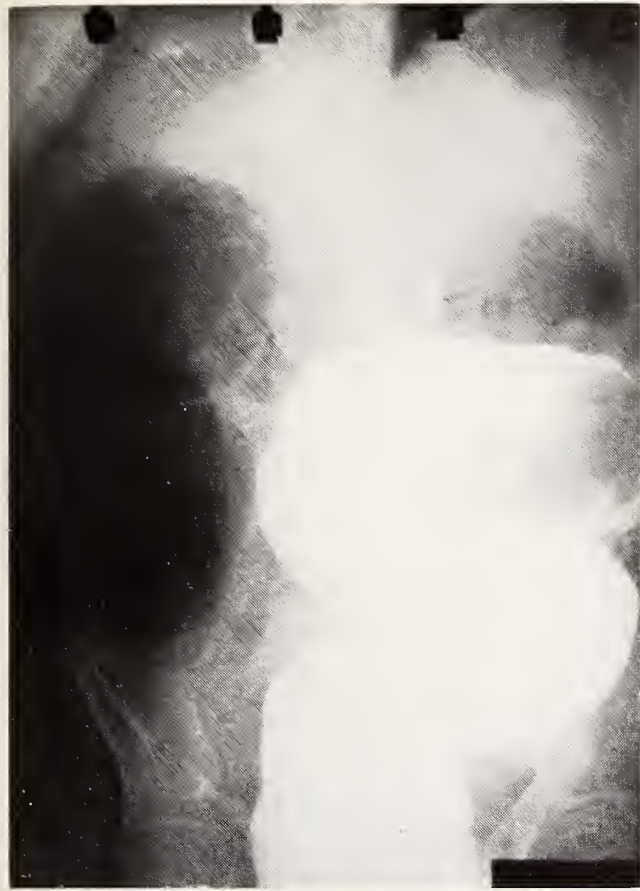


Figure 1. Barium enema August 18, 1963, showing dilated, gas-filled bowel proximal to obstructing lesion in the region of the splenic flexure of the colon.

first he was hypotensive and oliguric. This gradually improved. He developed a wound infection which undermined the skin and fascia exposing peritoneum and omentum. The wound was treated with mechanical debridement and Dakin's irrigation. Granulation developed and about five months postoperatively, the left colostomy was closed and a secondary closure of the wound was accomplished. The patient has been followed in the clinic since that time. The right transverse colostomy remains, and weakness of the left abdominal wall is present. The specimen consisted of intussuscepted colon with a perforation through an area of necrotic bowel wall. A malignant polyp was present on the leading edge of the intussusceptum.

Discussion

Many causes of perforation of the bowel with extravasation of barium into the peritoneal cavity have been reported, the most common being mechanical perforation from enema tips, bulb catheters and proctoscopy. In some cases intrinsic lesions of the bowel were present and considered to be the cause of the perforation. In others, both a lesion and trauma can be incriminated. Sawyer reported four cases of

barium peritonitis following perforation of peptic ulcers. In two, the possibility of perforation from manipulation during fluoroscopy was entertained. Increased intraluminal pressure during barium enema has also been suggested. However, Burt measured the pressure required to rupture the normal rectum from cadavers, and reported that about 5 pounds per square inch was necessary to perforate the bowel wall. The pressure of an enema can at three feet above the table with barium sulfate of usual concentration is about 2 pounds per square inch. The cecum is the weakest segment of colon but about 3 pounds per square inch is required to perforate it.

The mortality for this complication is high. Zheutlin reported an overall mortality of 51 per cent. Thirty-two of his 53 cases were treated surgically. The mortality was 47 per cent. A 58 per cent mortality was reported for the remainder treated conservatively. Selection may have been a factor in this difference in mortality since slightly more of the surgically than medically treated patients were classified in the fair to good category. He also noted that in the surgically treated group, those explored less than three hours after perforation had a slightly lower mortality than those explored during the subsequent nine hours.



Figure 2. Barium enema August 27, 1963, showing widespread intraperitoneal extravasation of the opaque media. The upper right quadrant decompression colostomy made August 20, 1963, can also be seen.

In the followup studies of the survivors, 30 per cent have required re-operation for adhesions. The percentage requiring re-operation was not significantly different between the surgical and conservative groups. Sawyer found, in his four cases, that the patient who underwent mechanical removal of the barium had the most postoperative complications.

Sawyer and Zheutlin each injected barium sulfate into the peritoneal cavity of guinea pigs without untoward effects to the animals. From this they have concluded that barium can be left in the peritoneal cavity with safety. Cochran injected commercial barium, USP barium sulfate and feces, singly and in combination, sterile and nonsterile, into the peritoneal cavity of dogs. He found that commercial barium causes a more severe reaction than USP barium sulfate. There was no significant difference between the reaction to sterile and nonsterile barium. When barium and nonsterile feces were injected, the reaction was much more severe than either the feces or the barium singly. When the barium was injected into guinea pigs, it was observed that it spread rapidly through the peritoneal cavity and an inflammatory reaction was already present at one hour. There was a tendency for the barium to accumulate in the omentum and in fibrotic nodules on the peritoneum. Some was phagocytized. The inflammation then subsided.

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Diffuse Familial Polyposis

Case Report of a 14-Year-Old Female with Complete Colectomy and Ileostomy

STANLEY L. VANDERVELDE, M.D., *Emporia**

DIFFUSE FAMILIAL POLYPOSIS is a rare entity in the ordinary general surgeon's practice. It is rarely encountered before the age of 12 to 14 years. Gordan, *et al.* reported six cases below the age of 15 years. Gross described it in a girl of 12 years. Coleman and Eckert reported five cases in children 13 years and under. Ravitch reported a case of diffuse polyposis, involving the entire intestinal tract, in an 18-month-old infant. The usual picture is one that develops in adolescence and presents symptoms in the twenties.

Case History

This 14-year-old girl was admitted to the hospital with a presenting complaint of severe anemia and persistent diarrhea. Her first symptoms were that of weakness and tiredness. Because of the severe anemia, hospitalization was recommended for further study. Sigmoidoscopic examination, along with barium enema, revealed diffuse polyposis involving the entire colon and rectosigmoid area. After diagnosis the patient was transfused and sent home to see if her nutritional state could be improved prior to surgery. She weighed 86 pounds at the time of hospitalization. At home, she gained a few pounds at first; however, it was soon apparent that her blood picture again was failing. She was returned to the hospital for blood transfusion and preparation for surgical removal of the colon.

Upon admission to the hospital hemoglobin was 46 per cent or 7.2 gms.; RBC, 2.23 million; WBC, 10,000 with 59 segmented cells, 6 stab forms, 4 juvenile forms, 2 basophils, 2 eosinophils, 7 monocytes, 15 lymphocytes and 5 atypical lymphocytes. There was central achromia, slight polychromia, 2+ anisocytosis, 1+ poikilocytosis, and moderate rouleaux formation.

It was felt that, provided the rectum could be preserved, cauterization of the rectal polyps should be done. Under anesthesia the rectum was found to be so filled with polyps that cauterization was not feasible. Several polyps were removed for pathological examination and the patient was returned to her room

for preparation for complete colectomy with abdominal perineal resection and permanent ileostomy.

A week later, after blood transfusions, a complete colectomy was performed with the abdominal-perineal resection and permanent ileostomy. An adherent ile-

A case of diffuse familial polyposis is presented in a fourteen year old girl. Complete colectomy has been carried out with permanent ileostomy. Good recovery and social adjustment has been accomplished in the patient.

Review of the literature is presented with a discussion of the familial tendency in this disease, along with proper therapy and care.

ostomy bag was applied to the ileostomy immediately. The ileostomy was brought out through a separate wound in the right lower quadrant of the abdomen.

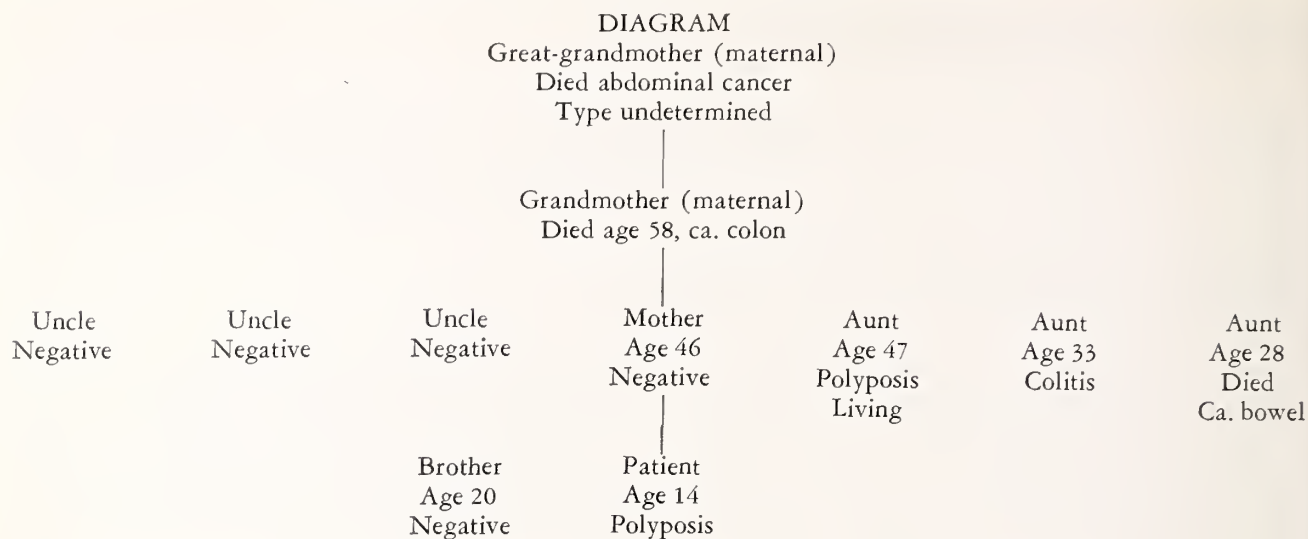
The patient's postoperative course was uneventful. She remained in the hospital for two weeks following surgery. A permanent ileostomy bag with skin adherent was used with a minimal amount of skin irritation. After five months, the patient had gained 25 pounds and had returned to school. At the time of this writing the patient weighs 176 pounds and has no complaints. However, she has been advised that she is too heavy and should reduce her weight.

Pathological Diagnosis: Familial polyposis of entire colon showing acute and chronic inflammation with some superficial malignant change in some polyps.

Family History

It is interesting to trace this patient's familial background as it pertains to her disease. A great grandmother died of abdominal cancer, the exact type undetermined. The grandmother died at the age of 58 with cancer of the colon which, it can be assumed, had its inception in polyps. The patient's mother, at age 46, is clear of any colon pathology. The mother

* Presented at the annual meeting of the Kansas Chapter, American College of Surgeons in Wichita, October 31, 1965.



has three brothers who are, at the present, clear of any colon disease. However, one sister, 47 years old, has polyposis of the colon. Another sister, at age 33, has colitis but no x-ray evidence of polyposis. Still another sister died at age 28 with cancer of the bowel, which could have had its inception in polyps.

History

Polyposis, although hereditary, is not congenital, as polyps have not been demonstrated at birth. Polyposis begins with a mutation in the genes of a person who has no polyposis. The mutant gene is passed to descendants. It is passed as a heterozygous dominant Mendelian trait. It is attributed to inheritance of the dominant gene. Fifty per cent of the offspring from the mating of a heterozygous individual carrying the gene and a normal homozygous recessive individual can theoretically have polyposis. Gene mutation is transmitted as a Mendelian positive likely to appear in each generation. If recessive, it becomes apparent when both mates have abnormal genes. Reed and Neal have shown in tests that the minimum frequency of birth in patients with the gene for familial polyposis is one in 8,300 births.

Age, Sex, and Family History

Duke states that in familial polyposis the average sequence of events are as follows: onset of symptoms at age 21; diagnosis at age 29; malignancy of the colon found at 34; average age of death 41.6 years. There appears to be about an equal division between males and females. Mayo Clinic reported 95 cases of familial polyposis with 52 males and 43 females. Age range was three to 56 years.

Symptomatology and Physical Findings

Symptoms of polyposis are usually absent until the

disease is in an advanced state. Many times malignant change has taken place before presenting symptoms are present. Diarrhea, blood in the stool, and occasional loose stools have been reported over many months. Fatigue, weight loss, and anorexia are often present. All these symptoms are non-specific. Thus, the process can be silent for years, and finally manifest itself when colon malignancy is far advanced. A high index of suspicion should be entertained and appropriate studies carried out whenever possible symptoms are seen.

Except when malignancy is advanced, physical findings, other than by rectal examination, are usually within normal limits. Rectal examination, digitally and sigmoidoscopically, usually will raise a high degree of suspicion. Suspicious findings can be confirmed by roentgen examination. Air contrast examination along with barium enema will almost always show the extensiveness of the disease.

Pathology

All polyps in polyposis are true polyps having a submucous stalk of fibrous tissue covered with epithelium. All show variation in diameter and can be sessile or pedunculated. They appear in greatest numbers in the sigmoid, splenic, and hepatic flexures. The relationship to carcinoma is inevitable. Charles Mayo stated: "The malignant potentialities of each polyp when multiplied by myriads of polyps present make this disease the most dangerous precursor of malignancy known."

Treatment

The treatment of diffuse familial polyposis is of necessity surgical, with removal of the affected part. With 100 per cent malignancy the eventual result of the disease, it is of greatest importance that the affect-

ed part of the colon be removed before the polyps undergo malignant degeneration. There remains a point of discussion as to the extent of surgery to be carried out, namely complete colectomy with abdominal perineal resection and permanent ileostomy versus ileoproctostomy with preservation of the rectal pouch. Subtotal colectomy with preservation of the rectal pouch is a more anatomical, as well as physiological, solution to the problem. This, however, must be controlled by the condition of the remaining rectal pouch. If only a few polyps that can be controlled with electrocauterization from the anal orifice remain, one can be relatively safe in doing ileoproctostomy. Again, one must evaluate the patient and satisfy himself that the patient will cooperate by undergoing sigmoidoscopic examinations every three to six months for the remainder of his life. In the case report presented, ileoproctostomy could not be done as the polyps extended to the anal orifice and were too abundant for cauterization.

If ileosigmoidostomy is done, no more than 15 cm. of rectum should be left so that sigmoidoscopic examination can be easily carried out. End-to-end anastomosis is always done to avoid any blind pouch. If at any time polyps become too numerous in the remaining rectal segment or show evidence of malignant change, the rectal segment should be removed with permanent ileostomy established.

Of interest is the finding that many times polyps disappear from the rectal stump or become less numerous after subtotal colectomy with removal of the larger focus of polyps. This has added support to the treatment of ileosigmoidostomy when at all possible, in preference to complete colectomy with abdominal perineal resection and ileostomy.

The discussion of complete colectomy with ileostomy versus ileosigmoidostomy continues. Ravitch and Sobiston feel that the only safe therapy is complete removal of the rectal segment with permanent ileostomy. Hoxworth and Slaughter reviewed the literature since 1930 in which the rectal segment was retained. They found that death from carcinoma in the remaining segment of the rectum occurred in 25 per cent in one to six years. They felt this a sufficient argument for complete colectomy. It would seem plausible that when multiple polyposis is found, and on the basis of 100 per cent malignant potential of each polyp, complete eradication of all polyps would be indicated.

The decision as to what procedure to follow with the single polyp found in the colon could allow for some temporizing. If available to reach by the sigmoidoscope, it can be fulgurated and followed by periodic sigmoidoscopic examination at six to twelve month intervals. If beyond the reach of the sigmoid-

oscope, barium enema examination at six to twelve month intervals should be followed. No increase in size of the polyp indicates further observation. Any increase in size should indicate immediate removal by surgery. Size of the polyp again is a factor. Most authors suggest that any polyp over one centimeter in size should be removed. Because of the malignant potential of all polyps in the colon, and the inability to estimate accurate size as well as growth rate and potential, practicality would suggest removal of all polyps when found. This should be tempered by age of the patient, surgical judgment, and surgical risk.

Discussion

Of interest is a similar syndrome known as Peutz-Jeghers syndrome. This consists of intestinal polyposis associated with mucocutaneous pigmentation. This appears to be a familial condition. The polyposis can be found anywhere in the gastrointestinal tract with predilection for the jejunum and ileum with the rectum, colon, stomach and duodenum to a lesser degree. To date, no malignancy has been found in these cases. However, the malignant potential of the polyp whenever found lends it to constant suspicion. Death from this condition is usually from gastrointestinal bleeding or nutritional deficiency as a result of extensive intestinal resections for the condition. Although quite similar in its familial aspects, the Peutz-Jeghers syndrome is felt by investigation to be a separate entity from the familial polyposis as discussed here. Treatment in the Peutz-Jeghers syndrome, because of the benign nature of the disease, is conservative while in diffuse familial polyposis the opposite is true.

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Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., *Kansas City, Kansas*

(Continued from July)

Miss S. Milo Hinch, a Canadian maiden lady and a graduate of the New York Hospital, was Supervisor of Nurses and Superintendent of the Bell Memorial Hospital. She was a rather large woman of middle age, amply proportioned but not obese, quite incisive and positive in her statements, and regarded as a strict disciplinarian. However, she had a fund of dry humor and was a very interesting conversationalist. Having spent her earlier years in Canada and in New York City in the best hospitals on the North American continent, she must have felt that she was on the Western frontier of nursing education. However, she always took things as they came, never complained, never made odious comparisons between the New York Hospital and the Bell Memorial Hospital and never took a patronizing attitude.

Miss Hinch set a high standard of education for her nurses, and, while they had a certain awe of her, mingled at times with a touch of fear, I never heard a nurse whom she had trained speak of her except in terms of deepest respect and gratitude for the excellent training she had received from Miss Hinch. I am sure she trained some of the best nurses the Nurses' Training School has ever graduated. Her sudden death from an anaphylactic shock, following the administration of a supposed remedy for arthritis,

was a great shock to all of us. Hinch Hall was later named in her memory.

A glance at the catalogue and directory of the Medical School published in November, 1915, shows that in the Rosedale division, there were in the School of Medicine 11 seniors and 20 juniors with 24 nurses in the Training School. The total fees for the first and second years in medicine were \$30 a year for residents and \$45 for nonresidents, while the fees for the third and fourth years were \$105 each year for residents of Kansas, and \$110 for nonresidents. After finishing their first two years at Kansas, many of our students went elsewhere for their junior and senior years. Some of these made exceptional records in the schools to which they had transferred and later made their reputations in distant cities. However, the number of medical students at Rosedale slowly increased, as new and competent members were added to the faculty. The instruction improved constantly.

In the early days of the Medical School, dermatology was assigned to the department of medicine. The catalogue for 1914-15 lists Richard L. Sutton and William L. McBride as associate professors of dermatology while the catalogue for the following year lists a Mr. Dennie as clinical assistant and states that he was in charge of the dispensary clinics in dermatology. I do not know why he was listed as Mr. Dennie, for the faculty list states clearly that Charles Clayton Dennie, M.D., was assistant in dermatology.

This is the fourth of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

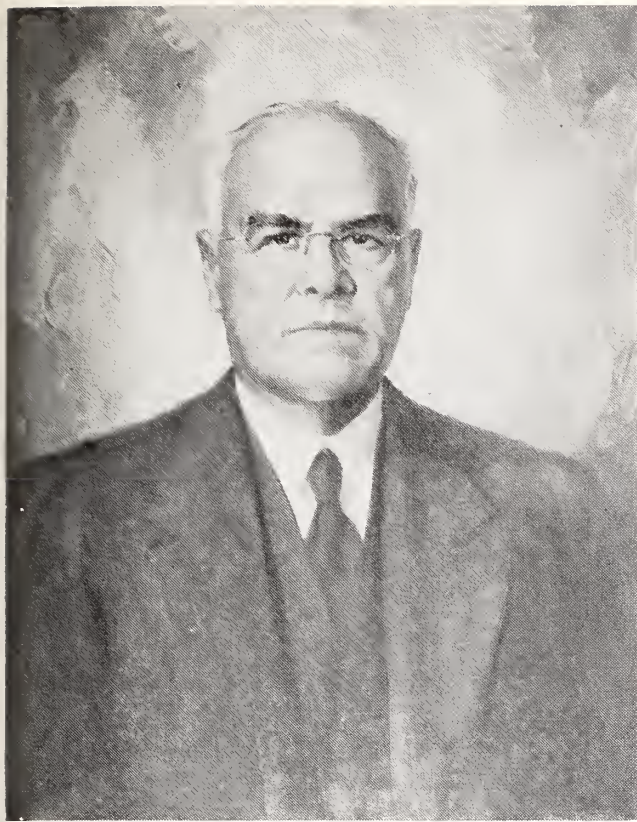


Figure 21. Dr. Richard L. Sutton

Richard Sutton (Figure 21), known to all as Dick Sutton, soon became one of my best friends. A man of tremendous energy and enormous vitality, he was like Pepys of old—interested in everything from kings to sealing wax. While his first and last love was always dermatology, he somehow found time in the midst of an enormous practice and his activities in charity campaigns, to make constant and voluminous contributions not only to medical literature but to the literature of travel and sport. He devoted hours to the study and teaching of dermatology, was a connoisseur of literature and the friend of poets, and also made a truly international reputation as a big game hunter and a deep sea fisherman. He could turn with equal ease from a discussion of the fine points in the microscopic appearance of skin lesions to a lecture on the fine points of the various guns in his extensive and valuable collection of firearms.

He encouraged everyone in the Medical School who, as he said, was trying to "put the place on the map," and, to paraphrase Huxley's description of his relationship to Darwin, he became Dr. Sudler's bulldog and fought for him vigorously on many occasions. Later, Sutton became professor of dermatology, and his book, *Diseases of the Skin*, brought credit to the school and assured him of a permanent place in the annals of dermatology. Sutton's disease, leukoderma acquisitum centrifugum, was named after him.

William, better known as "Bill," McBride, his colleague, was cast in a different mold. An excellent dermatologist, highly regarded by his colleagues both as a skillful physician and as a man of ability and high principles, Bill took life at a slower tempo. He was a very gregarious person, an interesting speaker, and no banquet or gathering was quite complete without a few remarks or a story from Bill. As he grew older, the climate of Kansas City became, as he said, a little rough on his windpipe and its prolongations, so he moved to the mild and balmy climate of Texas.

Charles Dennie (Figure 22) returned to Kansas City from postgraduate training in Boston about the time I came to the Medical School. I recall very well Duke's most vivid and enthusiastic account of some sections of syphilitic skin lesions after he had examined Dennie's slides. "Why, Charlie Dennie," he exclaimed, "has some slides showing the spirochaete winding around the sweat glands and simply choking them to death." If I recall correctly, Dennie at first was associated with McBride in the practice of dermatology and rapidly built up both an extensive



Figure 22. Dr. Charles C. Dennie, examining patients.

practice and a national reputation as a dermatologist. He presently had a very large dermatological outpatient clinic, where the students enjoyed his instruction and learned dermatology—to borrow from Asklepiades—"ut tuto, ut celeriter, ut jucunde" (safely, rapidly and pleasantly). Charles was an inimitable story-teller, so that his patients always felt better after he had examined them—a gift the gods bestow upon their favorites in the medical profession. On the retirement of Dr. Sutton, Dennie became professor and head of the department of dermatology.

The years caught up with Charlie, as they do with everyone, and he retired in 1953 and was succeeded by Richard Sutton, Jr., son of Dick. Like his father, Sutton, Jr., is a dermatologist and distinguished in his own right. For several years, he was the junior

editor of the well-known *Diseases of the Skin*, written originally by his father.

The next year or so brought no noteworthy changes in the *status quo*. We were looking longingly towards each session of the legislature to improve our physical condition, to give us more beds for clinical instruction, to increase our appropriations. The catalogue for 1916 states that the Bell Memorial Hospital "has accommodations for sixty-five patients," certainly far too few for a first rate medical school, but adds that St. Margaret Hospital had "three hundred beds." So, when the standardizing committee of the AMA visited us and criticized the small number of beds available for the instruction of students, we always leaned heavily on St. Margaret's and pointed out that we had really 365 beds for clinical instruction. So we continued on the AMA list as a Class A medical school, although I wondered at times in the deep recesses of my heart if our rating was not due as much to their hopes for our future as to our accomplishments in the present.

Dr. Sudler refused to be pessimistic about the future of the school although he did have his moments of discouragement. Sudler had much Pennsylvania Dutch blood in his veins, and these folk have a reputation for sticking to their guns and not running away under fire. Sudler certainly had this characteristic. Originally he had been a biologist, but, after receiving his Ph.D. in this subject at Johns Hopkins, gravitated to medicine, took his M.D., served a residency in surgery in New York City, and then taught for a time at Cornell. Here, Chancellor Strong met him in 1905 and persuaded him to come to Lawrence as professor of anatomy and dean of the scientific department of the Medical School.

When Sudler left the East for the—to him—unknown and uncharted West, his friends warned him that Kansas was in the Far West and still inhabited by bands of roving and marauding Indians. He said that he thought they were right when he alighted at the Union Station and found it jam-packed with Indians—feathers, paint, buckskin trousers, moccasins, squaws and papooses. He soon learned, however, that Buffalo Bill's Wild West Show was passing through Kansas City with an hour's intermission between trains.

Sudler often spoke of Daniel Coit Gilman, the first president of Johns Hopkins, who had created a great university and whose book, *The Launching of a University*, he often quoted. He was filled with the same ideals and hoped he could launch a medical school in Lawrence or Kansas City much as Gilman had done in Baltimore. However, I used to point out to him that Gilman started out with seven million dollars cold cash in his pockets, as it were, and that was a lot of money in 1876.

The dean of any school, especially of a medical school, needs a skin like a pachyderm if he expects to avoid a cerebral accident in middle age, not to speak of "minor" ailments like duodenal ulcers or ulcerative colitis. As the years went on, I think Sudler was less upset by the *banderillero* attacks of his critics. One of these very persistent critics, after voicing a series of complaints, said to me, "But I'm willing to admit that any mistakes he may have made were mistakes of the head and not of the heart." Looking back after all these years, I can recall no very gross mistakes. He misjudged people at times, not realizing that some people would do things which he, personally, would never do. I have always felt that the school owes him a great debt and that without his devotion, tenacity and courage it probably would have disappeared. Few people would have "stuck it out" as he did. Nor am I alone in this belief.

Anyone with sufficient curiosity to leaf through the old catalogues of the Medical School will be interested in noting that not only Dr. Sudler, but also Dr. Hoxie, was at one time associate professor of anatomy. He will also note that Dr. Sudler, who was professor of anatomy from 1907 to 1911, disappears from the anatomical scene in 1912 and is replaced by Dr. E. J. Curran as professor of anatomy, although better known to all of us later as a distinguished ophthalmologist. Verily, the department of anatomy seems to have been at that time a sort of seed bed into which budding plants were set out and tenderly nourished until they grew large enough to be transplanted into the more hazardous fields of clinical medicine and surgery.

Dr. Curran, who began his Kansas career as professor of anatomy, was another one of those Irishmen who were not born in their native country (*Figure 23*). After leaving his native Australia, he had, however, studied in Dublin and then graduated at Harvard in medicine. Later, he did graduate work at Oxford University, where he received the degree of D. Ophth. Dr. Curran was until recently very much in the midst of things at the Medical School.

Dr. Curran was commonly called Ezra to his back and E. J. to his face. The name, "Ezra," came, I understand, from an incident one day when he asked the nurse *sotto voce* for some eserine, and the nurse confessed she didn't know what kind of a drug "ezra" was—liquid, powder or pill. E. J. never seemed to care for the name "Ezra." I don't know exactly why since Ezra was a very notable personage and a prophet; so we usually called him E. J. or Edward. E. J. often used that *sotto voce* in varying degrees of intensity with a telling effect. I recall a patient, a city editor of *The Kansas City Star*, who smoked cigarettes in astronomical numbers. He came

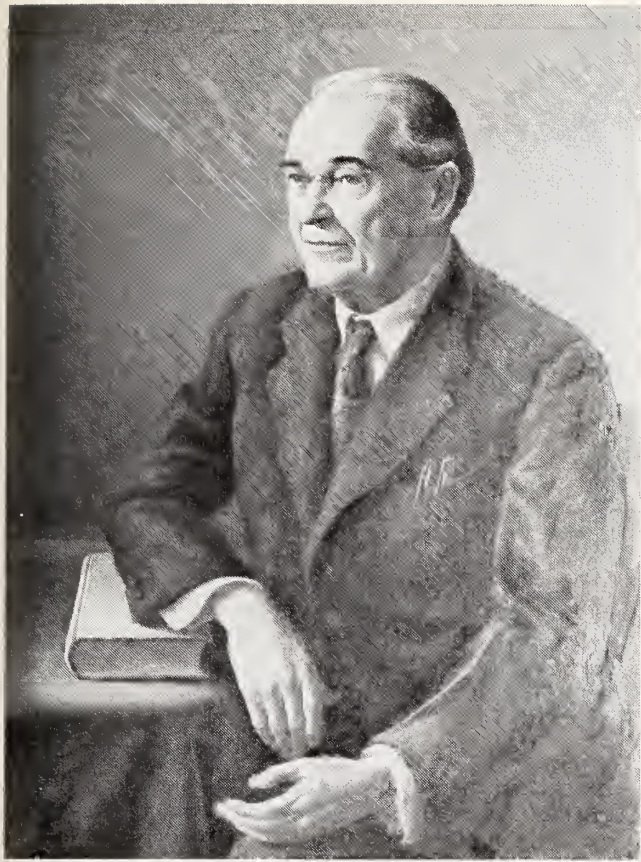


Figure 23. Dr. E. J. Curran

around in a large car by a chauffeur. He had a very exquisite sense of humor, like most Irish, but it was the quiet and not the boisterous type. To me, he was especially congenial, and we often sat out on the lawn of the hospital discussing various professional and nonprofessional topics, when he should have been downtown in his office. E. J. supplied to the hospital a steady stream of private patients, who were heartily welcomed by the hospital business manager, a man always harassed by the problem of making financial ends meet. Curran would operate only in the Bell Memorial Hospital, which, when compared with such new and shiny institutions as St. Luke's Hospital and St. Joseph's Hospital, presented a rather drab, run-down-at-the-heel appearance. But E. J. remained obdurate, and he kept a high percentage of the private rooms in the Bell Memorial Hospital filled. His downtown office was filled with patients from early morning until late at night, and stories were told that many patients sat in his office from daybreak until after dark, waiting for their turn to be shown into his inner sanctum. However, one story that a man once grew a beard while waiting for his turn is obviously a palpable exaggeration. But with all his huge practice, he never neglected his work at the Medical School. He was most conscientious in meeting his classes at the appointed hours even if his patients in his office waited long past the hour of their appointments.

Another veteran of that period was Isadore Julius Wolf, who was professor of internal medicine and lectured on dietetics. He had graduated at Munich some 30 years before and had worked in the clinic of the great von Ziemmsen before he came over the ocean and pitched his tent on the Western frontiers of medicine. Like so many Germans, he liked to teach and appreciated the title of "professor," which in his fatherland was never pronounced with a sarcastic inflection.

Dr. Wolf taught in several Kansas City medical colleges during his career. He was interested in medicine and not in the petty squabbles of the faculty, which have broken up so many schools, but sailed on serenely from one disrupted school to one with a better chance of survival. His colleagues used to say, "Schools come and schools may go, but Wolf goes on forever." He did not; no man can go on forever, and, at his funeral, where I was a pallbearer, there was a large out-pouring of his colleagues who had come to express their respect and esteem.

The approaching involvement of the United States in World War I brought increasing strains to the Medical School. There was a great demand for doctors in the European theatre. Fitzsimons went over with the Harvard unit and was killed in France. Clarence Francisco and Walter Sutton went to France

to the hospital thoroughly frightened because the evening before he had picked up a newspaper in his front yard and couldn't tell whether it was the *Star* or the *Post*. E. J. found he had a severe tobacco amblyopia and warned him to leave off tobacco. The patient, half blind and thoroughly frightened, promised to cease smoking *pronto*. A few days later, the patient's eyesight was greatly improved, he became quite cheerful and was seen by one of the nurses surreptitiously smoking a cigarette in the bathroom. The following morning when E. J. was making rounds, he walked into the patient's room and said in a middle intensity *sotte voce* with deep impressiveness, "You smoked a cigarette yesterday, smoke a few more, and you will become totally blind," and with that strode out of the room.

E. J. Curran was a brilliant student, an extremely well informed man, and in his specialty certainly yielded place to none. A quiet, reserved, dignified gentleman, who never lost his temper or raised his voice whatever the provocation, he always inspired respect, esteem and confidence. His operative skill soon became legendary, and, in a short time, he had an enormous practice. E. J. often smoked a long black cigar and drank a cup or two of coffee before operating but claimed that driving a car shattered his nerves and made his hands shake so much that it interfered with operating. So, he was always driven

and served on the battlefield. With the declaration of war, all life in America was disrupted and thrown into turmoil. The Christian Church Hospital in Kansas City, Missouri, organized a hospital unit, and many members of our medical faculty joined this unit. Milne, Dennie, Diveley, Aull and others joined the unit and "marched off to war." The Dean witnessed a gradual shrinking of his faculty and at the same time received insistent demands, or rather commands, from the Secretary of War to increase the supply of doctors. In addition, he received some rather sharp and acid communications from his old critics, accusing him of hiding unwilling doctors behind the skirts of the Medical School. "At any rate," he said grimly, "this has the novelty of being a new line of attack."

Orr and I left for the army in 1918. I waited for months before receiving my commission, but, after innumerable communications informing me that I was on the list of irreplaceable teachers, then informing me that my commission was on its way, and then stating it was held up, it finally arrived. Some time after, I received three orders ordering me to report at three different posts. This was finally straightened out, and, in time, I reached New Haven, where I was assigned to the laboratory school commanded by Colonel Craig and conducted by Captain H. Roswell Wahl. Here I learned some bacteriology and pathology, but what I learned primarily was that Wahl was an excellent teacher and had organized an outstanding school.

Shortly before this country entered the war, I had made plans to go to Detroit as assistant physician at the Henry Ford Hospital. I knew I would miss my old friends in Rosedale, but I had always regarded my pathological work as an excursion rather than as a permanent career. I had always wished to return to the field of internal medicine, and Detroit seemed to be the opportunity I had long desired. When I returned to Rosedale, I discussed the matter with Dr. Sudler, who heard my decision with what was, I am sure, sincere regret and asked me if I had any suggestions as to my successor. I told him the man he wanted was H. R. Wahl (*Figure 24*), who was now in Cleveland, pathologist to a large hospital



Figure 24. Dr. H. Roswell Wahl

there and I doubted if he would come. "Try," he suggested. I wrote Wahl immediately, and in a few days he appeared. I took him on a tour of the department of pathology, showed him our specimens, our slides, our records, and our equipment. He sat down for a few minutes, and, after I told him I was leaving and this was all his if he wished it, he said to my immense surprise, "I'll take the job. You are better equipped here than I am in Cleveland." This closed my career as a pathologist, and, when I took farewell of the old department which had been uppermost in my mind during those years of struggle, I had the comfortable feeling that I was leaving it in hands more competent than mine.

(To Be Continued Next Month)

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form.
They are deserving of your patronage.

The President's Message

DEAR DOCTOR:

About this time every two years we are reminded (sometimes not too pleasantly) of our inalienable right, that of *voting*—a privilege we take far too casually. As time passes, we of medicine feel complacent about our government and a futility in our daily battle with our legislators and congressmen. We are inclined to think that politics is a "dirty word" and beneath physicians' dignity. May I recall for you that the first governor of Kansas was a physician, and three members who signed the Declaration of Independence were physicians.

Physicians do have a place in politics and government, and their opinions—when received—are respected.

The August primary is over and I hope all members voted. The Kansas Medical Society has prided itself on its bipartisan stand and party affiliation is the individual choice of each physician. Only one thing we urge, *meet your candidates*. Know in advance which ones think as you do and then support them.

Sincerely,

James H. McClure M.D.

President





"No H.P."

"No H.P." is an order that physicians have wanted to write on hospital charts for many years. They have not done so only because of the lack of proper phraseology. In simple form "No H.P." means "No Heroics Please."

In the past few years the rapid advancement in medical machinery for resuscitation has been nothing short of miraculous. The time has arrived to take a long second look at the salvage. The results in the young patient are usually gratifying; results are more questionable in the elderly patient with multiple system disease. The production of every "human vegetable" adds a serious burden to a society already trapped in a population explosion.

As the science advances further, the physician may find that it is no longer sufficient to consider the welfare of the patient alone, but that he must also consider the result upon the family and society as well.

A case in point: An elderly man in his late sixties was admitted to the hospital moribund with his third coronary, diabetes and cerebral sclerosis. By the time the attending man reached the hospital, the house staff had "thrown the switch." The patient had tubes extruding from every orifice; veins were cut down; machines were breathing for him and making his heart beat. Once committed in this fashion, the staff man could not be expected to order the machines turned off. Like a Heart-Lung Preparation, the patient lived only 48 hours, fortunately. The attending man was heard to remark that the only way one could be certain a patient was dead was to have an electrical power failure. Perhaps an early request by the family doctor of "No H.P." should have been considered here. There might be a place for it in terminal cancer cases. It should be expected that only the older physicians will find the need for this order. The younger doctor may wrongly confuse this with mercy killing or as an affront to his Oath. If

Hippocrates were here today, it is certain he would modify the oath to say that the production of a "human vegetable" is an affront to the laws of nature.

Another charade concerns the young couple with a congenitally defective infant. The surgeon has, at best, only palliative procedures to offer. Instead of being satisfied with two reasonable attempts, he subjects the parents to six operations. Each operation is induced with hope and terminated with despair, a veritable trial by fire. Consider the anguish, mental as well as financial. How could the parents ever tell the doctor not to operate? As was predictable from the beginning, the child died within the first year.

As a man has the right to live, he also should have the right to die, with dignity if possible. So please brother, don't let them "throw the switch" on me.

DONALD P. TREES, M.D.
Wichita

Hospital-Based Physicians

Mr. Frank Sullivan, Commissioner of Insurance for Kansas, filed an official rule and regulation on July 15, 1966, to the effect that:

No accident and health insurance policy containing an anesthesiology, radiology, pathology or ambulance expense benefit provision will be approved by the department unless such provision is constructed or construed so as to provide coverage for such service whether furnished by a hospital or a private provider.

This is first submitted to the Attorney General for a ruling on its legality after which a public hearing will be scheduled. Barring unforeseen problems, the ruling becomes effective on January 1, 1967.



Personalities—IN KANSAS MEDICINE

Dr. and Mrs. Galen M. Tice, Kansas City, returned in May from an around-the-world trip which included six months in India. During the months they were in India, Dr. Tice spent his time in teaching and diagnostic work at the medical schools in Velore, South India, and Ludhiana, Punjab State. Mrs. Tice worked in the occupational therapy section of the medical schools.

At the recent meeting of the Mid-Central States Orthopedic Society held in Lincoln, Nebraska, H. O. Marsh, Wichita, was elected secretary-treasurer.

Alexander C. Mitchell and family, Lawrence, traveled to Trujillo, Honduras, in May. Dr. Mitchell served for six weeks on the hospital staff there as a member of AMDOC, an agency that provides physicians for needy areas.

In June, Dr. and Mrs. James H. Coffman and family went to Ganado, Arizona, where Dr. Coffman spent his vacation working in the Ganado Presbyterian Mission hospital which serves the Navajo Indians.

Max S. Allen, Kansas City, has been named outstanding alumnus by the University of Kansas Medical Alumni Association. The award was presented to Dr. Allen at the annual meeting held in Kansas City in June.

Ivan R. Burkett, Ashland, was honored for 50 years of medical service to Ashland and the surrounding area at a special celebration sponsored by the Ashland Chamber of Commerce in May.

The appointment of A. A. Fink, Topeka, to an 11-member vocational Rehabilitation Policy Planning Board was announced by Governor William H. Avery in May.

Raymond A. Schwegler, Lawrence, was named director of the Student Health Service at the University of Kansas in May. At the time of Dr. Schwegler's appointment it was also announced that James W. Campbell, Lawrence, would join the regular staff of the Student Health Service in July.

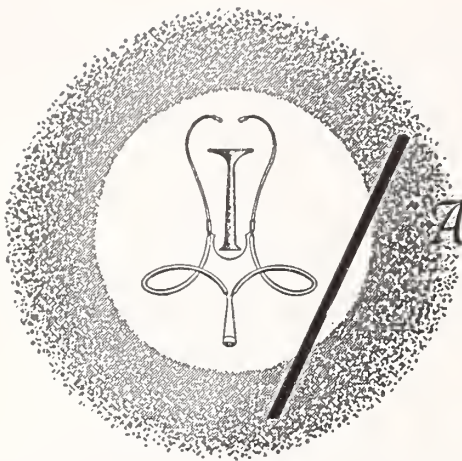
Don and Carol Sleeper, Elkhart physicians, moved to Wichita in June to begin their residencies at hospitals there. Dr. Don will specialize in radiology at St. Francis Hospital and Dr. Carol will specialize in Pathology at Wesley.

Dennis Farrell, Topeka, has been elected president of the Menninger School of Psychiatry Alumni Association.

Lucien R. McGill, Hoisington, was one of 16 members of the St. Louis University class of 1916 who celebrated their golden anniversary reunion during the university's commencement activities in June.

Marvin E. Johnson, Winfield, has accepted a position as associate pathologist at Memorial Hospital in Gulfport, Mississippi.

M. Martin Halley, Topeka, and Donald D. Decker, Halstead, were admitted as Fellows of the American College of Chest Physicians at their annual meeting held in Chicago in June.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

SEPTEMBER

- Sept. 11-16 Flying Physicians Association, 12th annual meeting, Dunes Hotel, Las Vegas. For information write: Roy B. Coffey, M.D., 162 Overhill Road, Salina, Kansas.
- Sept. 15-16 *Interprofessional Seminar on Diseases Common to Animal and Man*, Kansas State University College of Veterinary Medicine, Manhattan. Write Donald C. Kelley, D.V.M., for details.
- Sept. 25-28 Colorado Medical Society, 96th annual Session, The Broadmoor, Colorado Springs. For additional information write: Colorado Medical Society, 1809 East 18th Ave., Denver 80218.
- Sept. 26-30 Animal Care Panel, 17th annual meeting, Edgewater Beach Hotel, Chicago. For information write: Joseph J. Garvey, 4 East Clinton, Joliet, Illinois 60434.
- Tenth Congress of the Pan-Pacific Surgical Association:
- Sept. 20-28 Part I—Honolulu, Hawaii
- Sept. 28-
Oct. 10 Part II—Japan and Hong Kong
- Sept. 28-
Nov. 1 Part III—Japan, Hong Kong, the Philippines, Thailand, India, Singapore, Australia, New Zealand.

For more information write: Pan-Pacific Surgical Association, Room 236, Alexander Young Building, Honolulu, Hawaii 96813.

OCTOBER

- Oct. 1-2 International Conference on Pathology of Renal Diseases, New York Medical College. Write: New York Medical College, 5th Avenue at 106 St., New York, New York 10029.
- Oct. 17-20 Interstate Postgraduate Medical Association, 51st annual scientific assembly,

Sheraton-Park Hotel, Washington, D. C. For information write: Interstate Postgraduate Medical Association, Box 1109, Madison, Wisconsin 53701.

- Oct. 20-22 Symposium on Industrial Medicine: *The Doctor's Role in Occupational Health*, St. Petersburg, Florida. For information write: Industrial Medicine, Mound Park Hospital Foundation, Inc., St. Petersburg 33701.

- Oct. 22-27 American Academy of Pediatrics, 35th annual meeting, Palmer House Hotel, Chicago. Write: American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

POSTGRADUATE COURSES

University of Colorado:

- Oct. 3-7 *The Hospital Medical Staff Conferences* (Estes Park)
- Oct. 27-29 *Population Dynamics, Genetics Counseling and Birth Control*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Kansas:

- Oct. 25-26 *Medicine and Religion*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Blvd. at 39th St., Kansas City, Kansas 66103.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- Oct. 26-28 *Theory and Application of Gas Chromatography in Industry and Medicine*

For further information write the Department of Medicine, Hahnemann Medical College and Hospital,
(Continued on page 444)

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR:

UNITE! UNITE!

This looks like a union advertisement of the early thirties, doesn't it? Then, the unions were building their memberships to become the political powers they are at present. And they *are* powerful! It takes power to elect 60 per cent of United States Senators and 63 per cent of the Representatives. Their programs are being passed at our expense.

At long last, labor opposition is also building. A businessmen's political action force called BiPAC has been organized nationwide, and the Kansas State Chamber of Commerce has backed a similar organization called PACK, now in embryo. Initially, the latter will concern itself with candidates for the Kansas Legislature but will later be involved in national elections.

Unite! At last we are uniting and we need your membership in KaMPAC. It's your life which is being altered.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Along The BOOKSHELF

Clendening Medical Library

Recent Acquisitions

Abt, Lawrence Edwin, ed. Acting out; theoretical and clinical aspects. Grune & Stratton, 1965.
 Aspects of anxiety. Lippincott, 1965.
 Blakemore, William S., ed. Current perspectives in cancer therapy. Harper & Row, 1966.
 Broer, Marion Ruth. Efficiency of human movement. 2d ed. Saunders, 1966.
 Campbell, H. J. Correlative physiology of the nervous system. Academic Press, 1965.
 Caro, Colin Gerald, ed. Advances in respiratory physiology. Arnold, 1966.
 Cassels, Donald E., ed. Electrocardiography in infants and children. Grune & Stratton, 1966.
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 Shindell, Sidney. A method of hospital utilization review. University of Pittsburgh Press, 1966.
 Smythies, John Raymond. The neurological foundations of psychiatry. . . . Blackwell Scientific, 1966.
 Symposium on Steroid Hormones. 2d, Ghent, 1965. Androgens in normal and pathological conditions. Excerpta Medical Foundation, 1966.
 Symposium on Vascular Disorders of the Eye, San Francisco, 1965. Symposium on Vascular Disorders of the Eye. . . . C. V. Mosby Co., 1966.
 Thompson, James S. Genetics in medicine. Saunders, 1966.
 Vail, David J. Dehumanization and the institutional career. Charles C Thomas, 1966.



Book REVIEWS

DISEASES OF THE NEWBORN by Alexander J. Schaffer. W. B. Saunders Company, Philadelphia, 1965. 1,023 pages illustrated. \$22.

This long reference textbook contains excellent pathological and clinical material about every conceivable disorder of newborns. The book is organized by organ systems: respiratory, cardiovascular, gastrointestinal, genitourinary, and others. There are sections of special interest such as jaundice, infections, and nutrition.

The book reads easily. It is written in an almost disappointingly informal manner for what one would regard as authoritative reference material. The descriptions of the various disease entities are enriched with what is obviously the author's own personal case material, which brings what could be dull descriptions to dynamic life. One almost lives with the clinician as he meets the problem and attempts to solve it. Perhaps the greatest shortcoming, at least to this reviewer, is the rather indefinite and incomplete way in which treatment is recommended. One must realize the dilemma of the text author in writing about therapy which may be outmoded before the word is in print, but it was felt that others have handled this problem more ably. Particularly disappointing were the chapters on Respiratory Distress Syndrome and Infections. The Usher regime is presented in detail and then promptly (and properly) placed in perspective. The use of sternal clamps and sutures is mentioned because of "a nostalgic affection for the method" even though it has not been used by the author "for a number of years." This type of material embodies the main criticism of what should be an authoritative reference for the inexperienced to use for help in treating newborns. Infections are dealt with throughout the book and what is not

covered elsewhere is in a chapter by itself, leaving this important subject poorly organized. Specific recommendations regarding types and dosages of antibiotics are hidden in an appendix. The hazards of usage particularly of chloramphenicol were under-emphasized.

In summary the book can offer good and at times excellent descriptions of newborn diseases. It emphasizes those which are obviously the author's preferences, which is his prerogative. He chooses material which seems to be of less value than the current consensus regarding treatment at the time of publication would be. It can be highly recommended for the former, but for the inexperienced clinician a further search should be made before instituting therapy.—*A.C.C.*

SURGERY OF THE FOOT by Henri L. DuVries. 2nd Edition. C. V. Mosby Company, St. Louis, 1965. 586 pages illustrated. \$17.50.

This book is written, as indicated by the title, primarily as a comprehensive study on surgery of the foot.

The treatment of many of the minor foot ailments is not overlooked; however, this is not an office manual for shoe corrective methods.

The availability of information on the structure, function, examination, and diagnosis of the foot in the earlier chapters allows quick reference for a better understanding of the foot pathology and the procedural operative techniques.

All aspects of difficulties and pathology encountered in the foot from skin to bone and congenital defects to trauma are well covered as to diagnosis and treatment, both general and operative.—*G.B.J.*

CONTROVERSY IN INTERNAL MEDICINE
by Franz J. Ingelfinger; Arnold S. Relman and
Maxwell Finland. W. B. Saunders Company, Phila-
delphia, 1966. 679 pages. \$14.50.

One seldom finds a discussion of daily office medi-
cal problems in the literature. The authors and con-
tributors of this book present 22 different subjects
from various points of view, but in a very concise
manner. Many of the contributors develop their
papers around controversial questions relative to the
subjects discussed and the answers seem to solve
many office problems. Data presented is current but
not overburdening. This book is easy reading and is
full of practical thoughts. Every internist and general
practitioner would benefit by reading it.—A.V.M.

**DIAGNOSIS AND THERAPY OF THE GLAU-
COMAS** by Bernard Becker and Robert N. Shaffer.
2nd Edition. C. V. Mosby Company, St. Louis,
1965. 443 pages illustrated. \$18.50.

The second edition of this authoritative work retains
the lucid style of comprehensive treatment and ex-
cellent illustrations of the first edition. As the authors
state in the preface, new knowledge of anatomy, as
revealed by electron microscopy, advancing knowledge
of aqueous humor dynamics, and genetic and familial
aspects of glaucoma dictated this revised edition after
only four years.

The appendix has been enlarged to include good
illustrations of gonioscopy findings with case ex-
amples. Placing clinical applications in the concluding
chapters of the sections has facilitated its use as a
reference.

This is a comprehensive work and is a must in the
library of the practicing ophthalmologist.—G.F.G.

Announcements

(Continued from page 440)

230 North Broad Street, Philadelphia, Pennsylvania
19102.

University of Missouri:

Sept. 16-17 *Neurological Problems in Office Practice*

Oct. 14-15 *Soft Tissue Trauma*

For further information write the Office of Continuing
Medical Education, University of Missouri Medical
Center, Columbia.

Oct. 1-7 *Annual Otolaryngologic Assembly of
1966, Illinois Eye and Ear Infirmary,*

University of Illinois Medical Center,
Chicago. For complete information write:
Department of Otolaryngology, P.O.
Box 6998, Chicago 60680.

Oct. 27-29

Postgraduate Gastroenterology, Amer-
ican College of Gastroenterology, Belle-
vue Stratford, Philadelphia. Write to the
American College of Gastroenterology,
33 West 60th St., New York, New York
10023.

NEW MEMBERS

*The JOURNAL takes this opportunity to welcome these new
members into the Kansas Medical Society.*

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K.U. Medical Center
Rainbow Boulevard at 39th
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Kansas City, Kansas

Kendrick C. Davidson,
M.D.
K.U. Medical Center
Rainbow Boulevard at 39th
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Kansas City, Kansas

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GEORGE F. DAVIS, M.D.

Dr. George F. Davis, 75, died at his home in Kanopolis on June 11, 1966.

Dr. Davis was born February 2, 1891, at Harveyville, Kansas. He attended Washburn University at Topeka and graduated from the University of Oklahoma School of Medicine in 1916. He completed his internship in Ogden, Utah, and served as a captain in the U. S. Army in World War I. In 1919 he started his medical practice in Kanopolis and continued until his death, a period of 47 years.

Surviving are his wife and four daughters.

JARVIS E. HODGSON, M.D.

Dr. Jarvis E. Hodgson, 88, Downs, died at the Veterans Hospital in Grand Island, Nebraska, on May 17, 1966.

Born April 29, 1878, at Des Moines, Iowa, Dr. Hodgson graduated from Central Medical College of St. Joseph, Missouri, in 1899. He began his practice in Kansas at Long Island in 1901 and five years later moved to Downs, where he remained in practice until his retirement in 1963. Active in civic affairs, Dr. Hodgson served three terms as mayor of Downs.

Dr. Hodgson is survived by his wife and two daughters.

ALFRED J. HOREJSI, M.D.

Dr. Alfred J. Horejsi died at his home in Ellsworth on May 22, 1966. He was 56 years old.

Dr. Horejsi was born July 29, 1909, at Holyrood. He attended Fort Hays State College and received his degree in medicine from the University of Kansas School of Medicine in 1934. He had been practicing in Ellsworth for more than 30 years, having moved there shortly after graduating from medical school.

Survivors include his wife and two daughters.

CLAYTON T. RALLS, M.D.

Dr. Clayton T. Ralls, 85, a practicing physician in Winfield for 60 years, died on June 12, 1966, at Newton Memorial Hospital.

Dr. Ralls was born on February 14, 1881, in Bath County, Kentucky. He was graduated from the College of Physicians and Surgeons Medical School in Baltimore, Maryland, in 1904. He came to Winfield in 1905 and was active in practice there until his retirement in April, 1965. He was active in a number of civic, medical and fraternal organizations and was greatly interested in the education of nurses and the nursing scholarship program.

His wife, three daughters and a son survive.

The Kansas Medical Society—1966-1967

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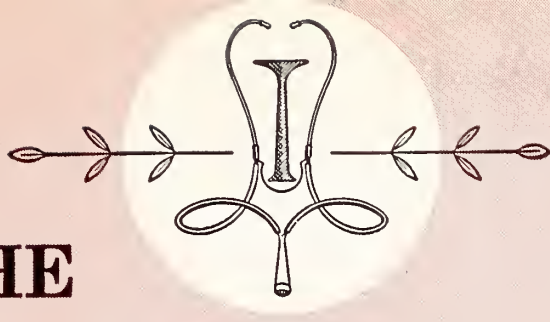
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The JOURNAL of the KANSAS MEDICAL SOCIETY

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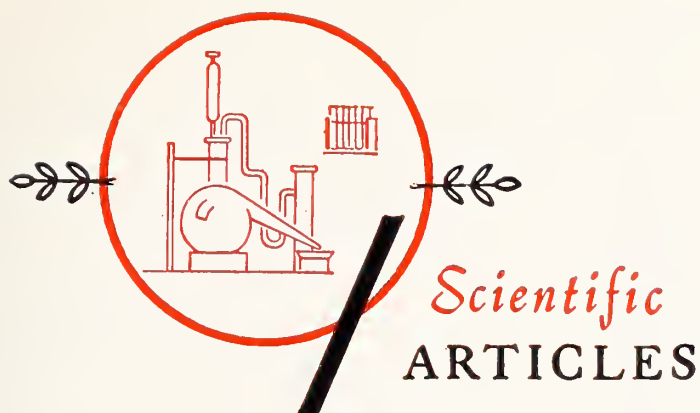
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Ignorance, Experimentation, Tragedy

Radiation Injury to the Hand

WILLIAM R. ALLEN, M.D., *Kansas City, Kansas*

THIS IS A REPORT of an unusual radiation injury which occurred in industry. The salient points are:

- (1) The injury showed the effects of an extremely large dose of radiation to one part of the body without evidence of total body radiation.
- (2) The type of radiation was soft, having emanated from the beryllium windowed Machlett Tube OEC60.
- (3) We have had the unique opportunity of following the reaction from a time shortly after exposure for a 95-day period before amputation. Color photographs of the hand made at short intervals recorded the changes which occurred (*Figures 1-12*).
- (4) The patient had intense pain which could not be controlled by large doses of narcotics but was immediately and completely relieved by amputation.

The clinical story began when a 19-year-old white male exposed his right hand to radiation. The injury occurred to this untrained industrial worker while carrying out unnecessary and unauthorized experimentation. The hand, dorsum up and resting on the handle of a survey meter, was exposed for from three to five minutes. The x-ray tube was operating

at 50 Ma. and 60 KV. The target-skin distance was six inches.

Four hours after the exposure occurred, the patient became aware of a tingling sensation in the hand. The first evidence of an erythema appeared at that time. At the end of 24 hours, the tingling sensation was replaced by slight tenderness. The erythema was more severe. Forty-eight hours after the radiation, the patient was referred to us for evaluation

A unique case of radiation injury is reported with serial photographic studies of radiation reaction and pathological findings.

and treatment. Pain was beginning, there was definite erythema and the hand was slightly swollen. A sharp line of demarcation of the erythema was evident slightly above the wrist and edema was most noticeable over the dorsum and the hand and wrist. This was the beginning of a radiation reaction which was to have one cardinal clinical feature—pain.

On the third day edema increased and the red-denning became less as the tissues of the hand came under tension. Pain increased and codeine, gr. ss. q. 3

hr. gave only partial relief for about an hour. On the fourth day, vesiculation which had begun during the third day, increased rapidly. A large blister presented over the dorsum of the hand and edema extended to the elbow. On the fifth day, the bulla on the dorsum of the hand, measuring 10 cm. in diameter and 5 cm. in thickness, continued to enlarge. It ruptured the evening of the fifth day, discharging a thick, tenacious, clear, yellow fluid. Drainage was not complete. By the sixth day, the fingers were dusky gray in color and edema extended to the shoulder. The patient complained of severe pain when the hand was out of the ice packs which had been started on the fourth day. Some decrease in the edema occurred on the seventh day and a line of demarcation was clearly present between the dorsum and the palm, showing that the radiation dosage to the dorsum of the hand was great when compared to the palm. Changes occurring to the hand lessened after the first week. The edema, extending almost to the shoulder, was still present. At this time the patient had some diarrhea, abdominal pain, headache behind his eyes and some nasal blockage; none of these were attributed to the radiation injury. The edema of the arm was almost completely gone on the 15th day. The vesiculation over the dorsum of the hand continued. There was, by the third week, discoloration of the palmar aspects of the fingers. The color was yellow-white on the palms as on the dorsal aspects of the fingers, due in part to aureomycin ointment. The nail beds had lost their color, but sensation in the tips of the fingers persisted. The patient had some low-grade intermittent fever. On the 20th and 23rd days, a partial debridement showed a thick gelatinous change in the tissues on the dorsum extending into the deep structures. By the 28th day, the more acute reaction was present on the anterior aspect of the hand at the distal palm and the proximal fingers. The dorsum was swollen into a convex contour and the color of this part of the hand began to change to a dark brown. Beginning healing of the proximal palm showed by the 35th day as small round areas of regenerating skin. It was at this time that a thick, white, sticky exudate formed over the fingers. Very little voluntary motion remained in the hand. The stiff fingers responded only faintly to voluntary flexion or extension. The next four weeks showed little change in the appearance of the hand except for healing of the skin of the proximal palm and increase in the blackening of the convex dorsum. On the 91st day an extensive debridement showed no bleeding deep into the dorsum and very little bleeding of the palm. The blood supply to the thumb was not adequate. Amputation was carried out on the 95th day after exposure.

The blood counts were as follows:

Day After Injury	WBC	Polys.	Lymphs.	Mono.	Eosino.	Baso.
5	9,100	75	25			
7	9,050	75	19		6	
8	7,700	66	23	3	7	1
9	11,250	77	21	1	1	
10	13,550	81	14	1	3	1
11	12,200	83	11	1	4	1
14	12,000	82	14		4	
16	12,500	78	18		4	
18	14,800	82	16	2		

It was concluded that no significant alteration in the blood picture occurred.

Treatment

The course of treatment was as follows:

1-4 days	No treatment except codeine for pain.
4th day	Hospitalized.
4-8 days	Ice packs to hand and arm.
8-24 days	Aureomycin ointment with pressure dressings.
24th day	Debridement of dorsum of hand tissue exuded thick gelatinous material. Amputation advised by the consultant.
24-56th days	Vaseline gauze with pressure dressings.
56-58th days	Wet boric acid packs.
58th day	Stellate ganglion block. No relief of pain even though a Horner's syndrome was produced.
59-61st days	Wet boric packs continued. Pain increased.
61-95th days	Vaseline dressings.
95th day	Amputation.
96-103rd days	Patient nervous and excitable but did not need narcotics for pain.

During the entire time of hospitalization, various antibiotics were given.

Narcotics used included codeine, morphine, Pantopon, Dromaran, Dolophine and Dilaudid. In addition, various types of sedatives were administered.

The above summary shows the types of treatment used. Pain had become well established by the fourth day and was always greater when the hand was exposed to air. The patient continued to have severe pain when in the ice packs which had been instituted on the fourth day. Good refrigeration of the hand was never obtained during this period. Aureomycin ointment dressing with pressure gave some relief of pain and was much better tolerated than the ice packs. This was changed to vaseline gauze dressings because of the lack of infection and the economy of

these dressings as opposed to aureomycin ointment. Boric acid packs were applied for a few days but these were discontinued because of the bitter complaint of the patient. The boric acid packs were used to rid the hand of the tenacious thick exudate which covered the fingers at that time but success was only partial. Penicillin, intramuscularly, was given daily for the first 60 days and Terramycin 250 mgm. q.i.d. thereafter.

Amputation of the hand was postponed for a long period of time because of the hope that the thumb might be salvaged; there was some division of opinion as early as the 24th day as to whether this could be accomplished.

The point to be emphasized in the clinical course and treatment is the severe pain in the hand which the patient experienced during the 95 days before amputation. He received narcotics on schedule every four hours during every waking hour and the relief of pain was not complete. When the patient was awake he had pain regardless of the dosage or the preparation used. The patient described the pain as "holding my hand in a burning flame and I cannot get it out."

There was considerable fear of a "phantom" hand in this instance but the results of amputation were immediate and complete relief of pain following amputation. However, following the amputation, the patient became quite nervous and excitable. The exact nature of this nervous state was not determined. Emotionally, the patient was basically somewhat labile. Withdrawal of the narcotics probably played a part in this reaction. He was kept under sedation for a period of 48 hours with 45 gr. of sodium amytal. After this period of time, he was allowed to awaken. The heavy narcotic regime did not result in addiction and a satisfactory adjustment to the loss of the hand was made. The considerable weight loss experienced by the patient during the course of his illness was promptly regained and he returned to a state of well-being by the end of one month.

The output of the Picker OEC60 industrial x-ray unit causing the injury was measured. The results:

<i>Voltmeter Reading</i> KV	<i>Tube Current</i> Ma.	<i>Distance From Target</i> Inches	<i>Filter</i> mm. Al.	<i>Approximately Correct</i> r/min.
60	50	6	none	26,400
60	50	7	none	19,550
60	50	8	none	14,700
60	50	10	none	8,350
60	50	10	0.05	5,850
60	50	10	0.10	3,780
60	50	10	0.15	2,780
40	50	6	none	15,700
40	50	10	none	5,450

In addition, measurements of the intensity of scattered radiation at a point ten inches below and ten inches horizontally from the focal spot of the tube were made when a Victoreen ionization type gamma-ray survey type instrument was placed on a table in the x-ray beam. The tube was operated at 60 KV and 50 Ma. with no added filter. The scattered x-ray intensity at the measuring point was found to be 100 r/min. When an ordinary wool suit coat was placed between the scattering source and the ionization chamber, this intensity was reduced to approximately 50 r/min.

It is clear that a person standing near the x-ray tube with his hand on the Victoreen survey instrument for three minutes would have received a body surface dose which varied from a maximum of approximately 300 r. at a point on the body nearest the survey instrument and table, to lower values as the point on the body was more remote. Since this scattered radiation would have been even more soft than the primary beam, the intensity and consequently the dose, at points below the surface of the body would have decreased very rapidly and would have been inconsequential at depths greater than two or three millimeters.

In order to estimate possible consequences of the exposure of a human hand to the primary beam, we refer to the measurements made of the primary beam intensity. If we assume the machine set at 60 KV and 50 Ma., and if we assume the hand to be placed at eight inches vertically below the target, and if we assume the skin and soft tissues to absorb in approximately the same manner as bakelite, we arrive at the following:

<i>Depth Below Skin Surface</i>	<i>Dose Roentgens/Min.</i>
0.0 mm. (back surface)	44,000
1.5 mm.	22,000
3.0 mm.	12,900
5.0 mm.	7,900
10.0 mm.	3,400
20.0 mm.	1,400
30.0 mm. (palm surface)	900

In the above estimate, no account has been taken of the considerably higher absorption of the bones and the consequent reduction of the exit dose due to the shielding of the bones by the tissues lying below the bones.

Pathology

The pathological study of the hand was carried out after serial gross sections were made. A radiograph of the hand was made and areas were selected through the specimen for microscopic study. Repre-



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

Figure 1. Forty-eight hours after exposure. The erythema shown here began four hours after exposure and was sharply demarcated at the wrist. Pain began 48 hours after exposure.

Figure 2. Four days. Note edema at the wrist. Edema extended to the shoulder and reduced 15 days after exposure.

Figure 3. Six days. Note line of demarcation on the fingers showing more radiation on the dorsum. Edema had extended almost to the shoulder on this day.

Figure 4. Eighteen days. Some of the discoloration is due to aureomycin ointment, most due to edema and cellular death. Refrigeration in cracked ice used before the eighth day.

Figure 5. Eighteenth day.

Figure 6. Twenty-eight days. Note swelling of the dorsum and the changing color of the dorsum. The nail beds have been dark since the 12th to 16th day. Debridement of the dorsum had been done on the 20th and 23rd days.



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

Figure 7. Twenty-eight days. There is a more marked reaction on the distal palm and proximal fingers.

Figure 8. Seventy-first day. Note the blackened dorsum. There has been a lack of change in the past three weeks.

Figure 9. Seventy-first day. The healing of the proximal palm began about the 35th day.

Figure 10. Ninety-one days. After debridement. Note the lack of bleeding of the dorsum.

Figure 11. Ninety-one days. After debridement there was only a small amount of bleeding of the palm.

Figure 12. Ninety-five days. The amputated hand. Note the line of demarcation where great cell death occurred on the dorsum.

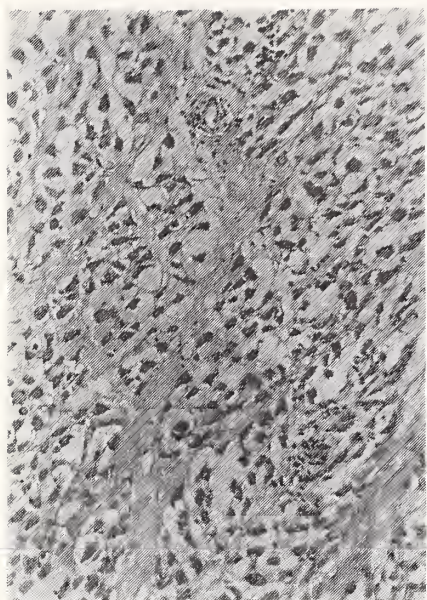


Figure 13



Figure 14



Figure 15

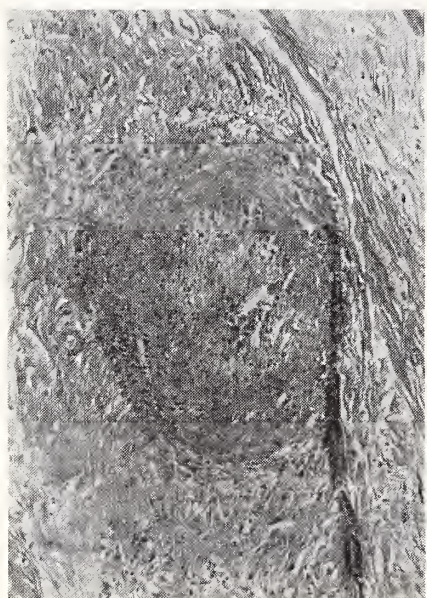


Figure 16

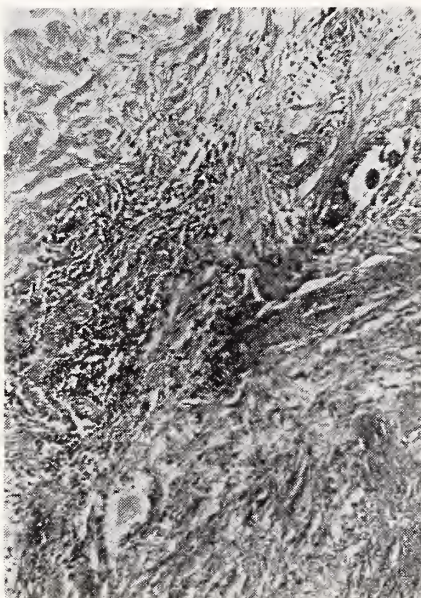


Figure 17

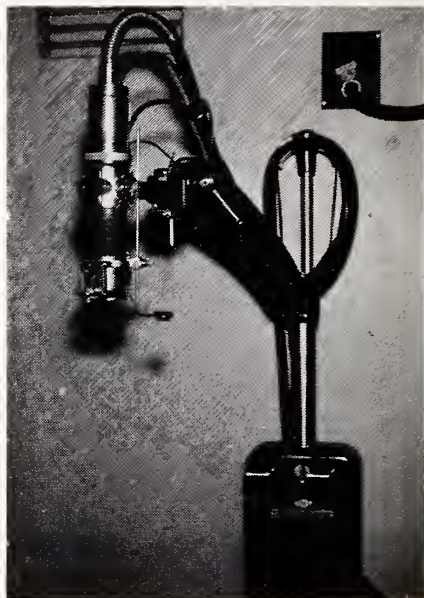


Figure 18

Figure 13. Necrosis of muscle and focal round cell infiltration from the dorsal aspect of the hand at the level of the mid-metacarpal.

Figure 14. This is from the mid-palmar surface at the margin of the skin ulcer at the mid-metacarpal level. Note the sharp line of radiation injury.

Figure 15. Bone marrow necrosis from the mid-section of the fourth metacarpal.

Figure 16. Section is from the palmar portion of the mid-palm at mid-metacarpal level. There is endothelial proliferation of an artery.

Figure 17. Section is from the palmar portion of the mid-palm at the mid-metacarpal. There is, in the microscopic section, small artery necrosis, endothelial hyperplasia and pericapillary inflammatory reaction.

Figure 18. Picker OEC60, Industrial X-Ray Unit.

sentative sections of the microscopic study are shown in *Figures 13 through 17*.

The gross specimen showed a large area of tissue necrosis over the dorsum of the hand. The changes on the palm were not at severe although an area of ulceration was present over the major portions of the palm. The line of demarcation between extreme damage on the dorsum of the hand and less severe necrosis on the palm was present along the mid-coronal plane of the fingers and palm. The radiograph of the amputated hand showed no change in the roentgen appearance of the bone structure.

The microscopic changes are those of cellular necrosis from direct radiation injury and gangrenous change following loss of blood supply. There is hyalin degeneration of cells of the subcutaneous tissues including the muscle cells of the palm. The blood vessels show a varied response from no change to endothelial proliferation to cellular necrosis. All of these vascular changes are seen in the same microscopic field in many instances. The bone structure shows a marked acellular change of the marrow. Microscopic sections through the area of greatest damage on the dorsum show disorganized cellular debris and exudate. Some bacterial invasion was present without any cellular response.

Acknowledgement

We would like to acknowledge the assistance afforded by Dr. Frank E. Hoecker, Radiation Physicist, who made the calibration and physical evaluation of the Beryllium Window Machlett Tube; and of Doctors J. G. Bridgens and Victor B. Buhler in the study of the pathological material.

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Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.

Toxic Reaction . . .

. . . Report of a Death Following Administration of Triamterene

A. C. EITZEN, M.D., *Hillsboro*

ACCORDING TO REGISTRY on Adverse Reactions Council on Drugs of the American Medical Association, toxic reaction following the use of triamterene (Dyrenium) has apparently not been reported. Some of the earlier announcements of the drug did give a warning concerning the possibility of liver damage from the drug. This is a report of a death following the use of this drug.

A 58-year-old, unmarried, white female patient was admitted to the hospital on December 15, 1964. She complained of swelling of the face and feet for a week, and of anorexia and weakness for about three weeks. Eight months earlier she had moderate proteinuria with mild hypertension for several weeks. This cleared in three or four weeks, but recurred in the past month in spite of restriction of diet.

Her earlier history was essentially negative. Her father died of a stroke at the age of 79, and the mother died at 42 of cardiovascular disease. Four brothers were living and well.

At the time of physical examination on the date of admission her temperature was 97.2 F.; pulse 108, and blood pressure 110/80. The patient was ambulant, apparently not very seriously ill. The face was puffy; there was no other abnormality of head and neck. Lung areas were negative except for fine rales in the bases. The heart was regular and not enlarged; there were no murmurs. The abdomen was negative except for an enlarged liver, three fingers below rib margins and there was a small umbilical hernia. There was 3+ edema of the legs and feet.

The urine was straw colored, pH 5, sp. gr. 1015, protein 3+, occasional leukocytes. On December 18 the protein was 1+, and on December 23 there was a trace. At admission, hematocrit was 42 per cent; WBC, 10,100; 84 segmented cells; 3 monocytes and 13 lymphocytes. On December 21, WBC was 12,100; 90 segmented cells; 6 stab forms and 4 lymphocytes.

During the first several days the patient was in some distress, with occasional coughing and severe nausea. She received 100 mg. of triamterene twice daily as a diuretic, and perphenazine 4 mg. twice daily for nausea (this drug had been given previously on several occasions and was well tolerated).

By the 17th and 18th of December, the edema

had decreased; the liver was smaller, but the patient became more despondent. On the 19th mild icterus was noted. The next day she became somewhat stuporous, ate very little, but responded. Jaundice was more severe, respiration was rapid, and there were some petechiae over elbows and knees. In view of the warnings in the literature, triamterene was discontinued.

This patient had, from December 15 to 20, 1,100 mg. triamterene. She also had, during this time, 40 mg. perphenazine. The latter drug had been given previously with impunity. Hence, to say the least, triamterene comes strongly under suspicion as being the etiologic factor causing the hepatitis. The possibility of reaction due to a combination of the two drugs cannot be completely ruled out.

tinued. On December 21 the direct bilirubin was 5.2, total of 7.6 mg. per 100 ml.; SGPT was 380 units. The following day the patient became confused, response was slow and there was less edema. On December 23 and 24 she had a temperature of 100.2 F., and responded very poorly. Her condition worsened, and she expired on the 25th.

A limited autopsy was obtained. Grossly, the liver was slightly enlarged; the stomach and intestines were not remarkable. The spleen weighed 125 gm. A horseshoe kidney weighed 230 gm.

Pathologic Report

The following is quoted directly from the pathologist's report.

Specimens are submitted from limited abdominal autopsy and consist of section from liver, spleen and horseshoe kidney.

GROSS: The spleen weighs 125 grams, has been fixed, is gray in color, and shows a normal anatomical configuration of a spleen. It measures 10 x 7 x 3 cm. thick. A cut section of the spleen shows a deep, brown, reddish pulp. There are a few areas of white tissue characteristic of trabeculation. The splenic capsule is about .5 mm. thick, and perfectly smooth.

A section of the liver has been presented, and measures 6 x 4 x 3 cm. The surface is smooth, shows many small 1.0 mm. sized, rather punctated type of white spots. The cut surface of the liver shows marked infiltration with yellowish, fatty-like material. This is infiltrated throughout the whole cut surface of the specimen presented, and in between this are brownish areas more characteristic of normal liver color. The kidney is a horseshoe kidney, and weighs 230 grams. The right and left ureters and blood vessels are well defined. The entire kidney measures 13 cm. in its largest transverse diameter, 9 cm. in the largest superior-inferior diameter, and about 3 cm. at the thickest point. The surface of the right kidney is nodular, and as one approaches the midline the nodularity suddenly ceases and becomes smooth, apparently the smooth part being the opposite kidney. The kidney on the right appears shrunken, and considerably smaller than the one on the left. The right kidney measures 9 x 2 x 2 cm., and the left kidney 11 x 5 x 3 cm. When the entire mass is hemisected from side to side, it appears that the hilar areas are normal, and the cut surface of each kidney appears identical. The trabeculations, the renal papillae, and the architecture is the same from side to side. The renal pelvis on each side appears normal, and there is no evidence of dilation.

MICROSCOPIC: Representative sections of the spleen; the splenic capsule is intact and arteries of the white pulp have thickened and hyalinized walls. Throughout other fields of the splenic parenchyma there is focal congestion of the sinusoidal spaces. Throughout the representative sections of the liver, central zone of the lobules, the hepatic cells have a ghostlike appearance; the sinusoids are congested, and there is an admixture of erythrocytes with fibrin. There are bile lakes, bile

plugging and in the perimeter of this area are mature adipose cells. The nuclei of the adjacent hepatic cells are vacuolated and only the nuclear membrane is intact. In some fields the central zones of these lobules are confluent with an adjacent lobule and there is an occasional island of intact hepatic cells. In one particular field the hepatic cells are diffusely replaced by mature adipose cells. Representative sections of the slide marked "right kidney," the capsular surface is fairly uniform and there are zones extending from the capsular surface throughout the cortex in which there is an increase of interstitial fibrosis; infiltration by lymphocytes and an occasional plasma cell, periglomerular fibrosis and the medium size arteries and arterioles have thickened and hyalinized walls. In many fields the glomeruli are undergoing hyalinization. In representative sections of the slide marked "left kidney," the capsular surface is fairly uniform, likewise there is an occasional glomerulus undergoing hyalinization and there are zones in which there is periglomerular fibrosis, increased interstitial fibrosis, infiltration by lymphocytes and occasional plasma cells, and the arterioles and medium size arteries have thickened and hyalinized walls. The medullary portion histologically is not remarkable. The mucosal lining of the pelvis is intact and histologically is not remarkable. The tubule epithelium of both kidneys have a ground-glass appearance.

PATHOLOGIC DIAGNOSIS: Spleen.

Central lobular degeneration of liver, extensive.

Cholestasis and focal fatty metamorphosis of liver.

Chronic pyelonephritis.

Arterial and arterionephrosclerosis.*

*Pathologic examination by M. E. Johnson, M.D., Pathologist, Hertzler Clinic, Halstead, Kansas.

GALLEY PROOF CORRECTIONS

There is sometimes a misunderstanding about changes in an article on the galley proofs and the reluctance of the JOURNAL to make extensive alterations. The reason for this is quite simple and easily understood when one knows all the facts. The article has already been set in type. To make extensive changes requires that the typesetting be done over, at an additional cost which may even exceed the original, because it is slower work to fit pieces together than to set an entire article in type. It is also obvious, when one stops to think about it, that an alteration in the first few lines of a paragraph will probably make it necessary to reset the entire paragraph. This, of course, increases greatly the cost of printing and should be avoided as much as possible. The galley proof is for correction of errors, and a rewriting of the article should be done on the original copy before it is submitted for publication.

Working Psychiatry

Prescription for Psychiatric Day Treatment

RONALD CHEN, M.D.,* *Topeka*

IN THE YEARS PAST, state psychiatric hospitals were built on the principle that they should not be a part of the community.¹ They were built away from the urban centers they were to serve, often completely isolated. The community expected them to provide confinement for its undesirable and, perhaps from its point of view, untreatable mentally ill. However since the turn of the century, the professional attitude toward the major psychosis has become less pessimistic, and in the past 20 years, major efforts have taken place to change the traditional custodial approach to active treatment-oriented programs.^{2, 3}

The mental hospitals, which were originally built outside the communities, now, by and large, find themselves in the communities; the communities have grown out and surrounded the hospitals. There appears to be a general willingness on the part of behavioral scientists and mental health specialists to consider the deterioration of mental patients in hospitals not as intrinsic to the psychotic process, but as a phenomenon induced by prolonged hospitalization. At the same time, community mental health clinics and day treatment centers came into existence in geometric progression following the joint commission report,⁴ and the 1963 Federal Regulation Act concerning the community mental health centers. In the Act specific reference was made to partial hospitalization as a key element of service in comprehensive community mental health centers. It is reasonable to assume that for some psychiatric patients, day treatment is as effective as psychiatric hospitalization or more so.

In the long run, the most distinctive and enduring feature of the day treatment program is its intrinsic character as a link between the hospital world and that of the community.⁵ This linkage takes shape in several ways. First, and probably the most important, is the fact that day patients return home nightly to their families and neighborhoods. They are reminded each day of their continuity with their home setting. Regular contacts with family and community seem to preserve social skills and prevent excessive dependency and regression. The second feature of a

day program is the opportunity for patients and the treatment team to involve families. In the case of psychiatric hospitalization, on the other hand, the hospital takes responsibility for the patient's care and the family may recede into the background as an interested, but psychologically distant, party. Day treatment necessitates regular interaction between the patient and his family evenings and weekends and carries with it special problems and difficulties. These

The day treatment program at Topeka State Hospital combines individual, family, group, medical and activity therapies. The ease of transferring a patient from one service to another within a comprehensive mental health center or between agencies, and the importance of continuity of patient-staff relationships are useful guidelines to the collaborative effort of planning an effective therapeutic program.

problems may bring about an active relationship between the family and the treatment team. The third nexus between day treatment center and community is represented by neighbors and other individuals in the patient's life. If his activities proceed fairly smoothly, neighbors and significant others, seeing his daily movement between home and center, may undergo changes in attitudes toward the mentally ill.⁵ Indirectly, the positive change of attitudes may heighten community receptivity for psychiatric rehabilitation. If, on the other hand, these individuals observe recurrent episodes of violent or other disturbing behavior by the patient, their expression of negative attitudes provides an opportunity for the psychiatric staff to work with these adverse feelings. Two types of services are commonly offered by a day program. One is as an alternative to hospitalization, and the other as an after-care center. More patients have used our Center for the former; however, the latter plays an important role as an intermediary step for inpatients toward readaptation to family and community living. The day treatment setting often encourages many to undergo psychi-

* Director, Day Treatment Service, Topeka State Hospital, Topeka, Kansas.

Presented at the joint meeting of Kansas Medical Society and Kansas Psychiatric Society, May 4, 1966.

atric treatment at earlier phases of their illnesses than their deferring treatment until crises develop.⁶

In the several hundred day treatment centers in the United States at present, mostly established within the past five years, characters and treatment programs vary significantly. Their functions range from first aid in a general and supportive milieu to highly individualized programs prescribed on the basis of patients' specific psychopathology and therapeutic needs. It is only fair to point out that all of these programs are still in the early stage of evolvement in their conceptual frameworks, and toward clarification of the nature and scope of day treatment.

The day treatment program⁷ at Topeka State Hospital* combines individual, family, group, medical and activity therapies, which are prescribed according to the needs and psychopathology of each case. The basic goal of treatment is to effect constructive intrapsychic changes and the prompt resolution of symptomatology that is disruptive to the individual's personal, social and vocational adjustment. Emphasis is placed on his healthy functioning with an attempt to hold regression to a minimum. The therapeutic milieu is informal with increased mutual patient-staff responsibilities and more reliance on the patient's ability to establish group controls. It encourages the patient to assume more personal responsibility for his welfare and his treatment. He is encouraged to spend as much or as little time with our program as is therapeutic for him. Although informal, the structured and scheduled program is individually arranged and prescribed. This schedule undergoes periodic review and revision in accordance with the patient's progress and the staff's better understanding of his difficulties. Flexibility in the program makes possible the planning of a schedule with consideration of the significant people in the patient's current life. Special emphasis is placed on the family and life situations, in order to work with relatives to whom the patient returns regularly. Evening hours are made available to patients and families who can come only after working hours. In addition to individual case-work, families are encouraged to attend weekly evening family groups when they meet with our social worker. Through these meetings, the nature of interactions at home is better understood by the staff. Moreover, working regularly with the family serves to clarify their roles in the patient's illness, and as a result they may become more supportive. Better understanding of family dynamics can reveal how the attitudes and actions of those in the patient's environment can actually oblige him to remain ill.⁸ Our Day Service has developed a work therapy program for patients who can profit from a trial work ex-

perience and receive some compensation for their work. This program also emphasizes pre-employment group therapy, patient employment bureau, and close working relationships with State Vocational Rehabilitation counselors and other agencies.

During the past year, one third of all our referrals came directly from community agencies or medical practitioners. This trend indicates some awareness as to the use of a psychiatric day program. It shows that the day program has been considered as one of the modalities prescribed by medical practitioners in their effort to treat patients in physical and emotional distress. It seems appropriate to acknowledge such a trend at this joint meeting of the Kansas Medical Society and Kansas Psychiatric Society, and to stress a point made in a recent talk by Miss Anna Freud* of London that in her studies on children physical illness constitutes a hardship, often requiring psychological coping and adjustment over and beyond the symptoms and pain of the disease itself. The effect of hospitalization, confinement in a strange setting, removal from one's familiar environment, disease which renders the victim helpless, and certain attitudes of the significant others, such as their over-protectiveness, over-indulgence, apprehension or resentment toward the ill, can indeed add much to the physical problems. Some of these additional burdens may respond to empathy and reassurance from the attending physician. Others may need additional psychiatric help. Frequently a patient may present physical symptoms only to mask emotional problems.⁹ In this case, the physician may become the object of unreasonable demands or unpleasant traits which he would do better to read as distress signals rather than as something to recoil from or overtranquillize. These patients may require more extensive psychiatric workup and treatment for lasting remissions.

To prescribe psychiatric day treatment, the following criteria might be helpful as guidelines:

- (1) Patient needs more than psychotherapy or outpatient treatment.
- (2) Family endorses treatment and is receptive to the patient's living at home.
- (3) Patient himself wants help.
- (4) He has potential to improve.
- (5) He has means of getting to and from the center.
- (6) Psychotic disorganization is not a contra-indication.
- (7) Character problems not contra-indicated if patient experiences need to change.
- (8) It is useful as an after-care transitional setting following hospitalization.

There are a few contra-indications to day treatment, among them serious suicidal risks, disruptive

* This program is supported in part by U. S. Public Health Service Grant No. MH 01730-02.

* Address to the 20th Anniversary of the Menninger School of Psychiatry, April 2, 1966.

behavior problems, and involuntary candidates. The procedure of referral to a day program may vary with each center. In general, for patients who need preliminary workups, a psychiatric out-patient clinic would be in a better position to provide such services. However, many day centers would accept patients with minimal workup, as long as tentative psychopathology and treatment goals could be established from the available information. Efforts are generally made to minimize delay in admissions to a day program and we have no waiting list in our Center. Prolonged waiting periods for admission have been shown to discourage not only referring agencies but also patients, who often react to the deferments by putting off treatment indefinitely. The ease of transferring a patient from one service to another within a comprehensive mental health center or between agencies, and the importance of continuity of patient-staff relationships are useful guidelines to the collaborative effort¹⁰ of planning an effective therapeutic program.

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NEW FILM AVAILABLE

"The Measurement of Depression" is a film depicting the development, validation, and use of a scale for the quantitative measurement of depression.

The scale was designed by Dr. William W. K. Zung,¹ Durham, North Carolina, psychiatrist. Although initially devised for use in psychiatric research, it readily lends itself to the general practice of medicine where most depressions are first encountered.

The film is designed for medical educational purposes at meetings of hospital staffs, county societies or specialty groups. The self-rating scales, available in

quantity for use in office practice, come complete with full instructions.

Both the film and pads of the self-rating scale are available free upon request from Lakeside Laboratories, Inc., Milwaukee, Wisconsin 53201.

The scale consists of a list of 20 statements expressed in the common language of the patient. The statements comprehensively delineate widely recognized symptoms of depression including disturbances of mood, biological and psychological function. Testing and scoring patients usually requires less than five minutes.

Statistical studies indicate that measurements so obtained correlate reliably with other more time-consuming depression rating scales in current use.²

Use of the scale in a variety of patients with physical complaints without apparent organic basis may uncover and measure depression in so-called "hidden depressions" saving valuable time in the clinic and several sessions of probing interviews.

In patients in whom depression is suspected, but is obscured by anxiety or by normal grief, the scale can be used to provide a quantitative index of depression which may be compared with depression ratings obtained in hospitalized and office patients with a variety of emotional disturbances.^{1, 2}

Surveys^{3, 4} published in the *JAMA* recently and over the last several years, indicate that approximately 50 per cent of all medical and surgical patients have illnesses that are primarily emotional—of these, more than half are depressive.

Depression is a condition of paradox and contradiction. It is sometimes a self-limiting disease with a duration of six to eighteen months, but it may persist for years. It may be obvious or be hidden—from the patient and from the physician.

The depressed patient's grasp of reality usually appears to be undistorted. Even so, suicide makes it necessary to classify depression as a potentially fatal disease. Depression is today's most common and most challenging diagnostic problem, in psychiatry as well as in the general practice of medicine.⁵ Despite its high incidence and much that is known about it—the diagnosis of depression often requires from months to years.⁴

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(Continued on page 474)



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., Kansas City, Kansas

(Continued from August)

The Renaissance

WHILE I WAS IN DETROIT, the long-awaited Messiah, for whom the Medical School had prayed so long, appeared in the person of Governor Henry J. Allen. Before I left Kansas City, "Mort" Albaugh, a power in Kansas politics, whose son was a medical student at Rosedale, had visited the School and told us that he felt sure he had interested Mr. Allen in the Medical School. "And Mr. Allen is in France with the Red Cross at present," I remarked, "He won't have time to come back and campaign for the governorship." "He won't have to come back," answered Mr. Albaugh. "We are going to tell the people of Kansas that Mr. Allen is a candidate, but he is too busy serving the boys in France to return home and make campaign speeches. That will be an irresistible appeal to the voters of the state. And he will prove a friend of the Medical School."

Mr. Albaugh was right. Mr. Allen was elected with ease and he was a friend of the Medical School. Unfortunately, Mr. Albaugh did not live to see the fulfillment of his prophesy. He was a victim of the prevailing influenza epidemic.

This was not the first time Mr. Albaugh proved himself a friend of the University, according to a story told me. Some years earlier, Chancellor Strong

had convinced Mr. Albaugh that a new gymnasium for the University was a necessity. The legislature was in session, so Mr. Albaugh, a few days later, called the Chancellor to ask him to come to Topeka. When the Chancellor arrived, with a briefcase full of pertinent data, he quite naturally asked which senators and representatives should be approached. "None at all," answered Mr. Albaugh. "We are going to see Cy Leland."

They found Mr. Leland in a smoke-filled room in the hotel in the midst of a poker game with some of his cronies. As they entered the room, Mr. Leland, the great political power of that day in Kansas, looked up a moment, nodded and said, "Hello, Mort!" "This is Chancellor Strong of the University," said Mr. Albaugh.

"Howd'y do," answered Mr. Leland, extending his hand but keeping his eyes on the game.

"You remember, Cy," began Mr. Albaugh, "You promised me that Chancellor Strong was to have \$100,000 for a new gymnasium."

"I thought it was \$50,000," countered Cy.

"No, you said \$100,000," answered Mr. Albaugh.

"Oh well," answered Cy, "A promise is a promise. He gets \$100,000. Goodnight, Chancellor."

And the Chancellor departed, marvelling at the ease with which appropriations were sometimes secured. The details of this conversation are difficult to verify as all these principals have now passed into the Great Beyond.

Soon after his election, Governor Allen called Dr.

This is the fifth of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

Sudler in and told him flatly that, in his opinion, the present site of the Medical School was unfortunate and that no legislature could be persuaded to build a modern plant costing several million dollars on such a forlorn spot. He added, however, that, if a new and desirable site could be secured, he believed he could persuade the legislature to proceed with the construction of a modern institution, one building at a time. Dr. Sudler, foreseeing just such a contingency, had already looked over a site on 39th Street and Hudson Road, a relatively flat tract of some 16 acres owned by Mr. Carnes, whose house stood on the northern end of it facing 39th Street.

Governor Allen played his cards with great skill. Finding some opposition to his plans, he first announced that the present site was totally inadequate and that it was perhaps best to abolish the Medical School. The legislature apparently concurred. Sudler was stunned and wrote me that I was lucky to be away where I could not witness the demise of the School for which we had all worked and fought so long. The Governor had apparently sensed what would happen. There was a great outcry at the proposed abandoning of the Medical School. Even those doctors who were dissatisfied with the conduct of the School, or who had felt it was a fundamental mistake to locate the School in Rosedale, were not prepared to see the only medical school in the state die such an ignominious death. Meanwhile, the Governor apparently relented and let it be known that, if a suitable site could be found, he would favor building a new plant and the legislature might follow his suggestions.

Then a whirlwind campaign got under way. Under the chairmanship of Dr. Guffey, the friends of the University in Greater Kansas City, members of the faculty and physicians in both Kansas Cities collected a sizable sum. Unhappy at the thought of losing the School, Rosedale voted bonds to help purchase the site. The sum of \$66,000 was secured in this way, the site was purchased and presented to the University. Meanwhile, the legislature, under the skillful guidance of Governor Allen, passed an appropriation of \$400,000 for the construction of the first buildings. This appropriation, while small by present standards, seemed enormous at the time, for the Medical School had received in appropriations from the legislature only \$75,000 for buildings over a period of 14 years. A new era had really dawned for the Medical School.

At this time, the Governor was asked to attend a meeting of a nearby medical society to hear their suggestions in regard to the new plans. The Governor listened patiently to the various complaints, which were finally epitomized by one physician who said bluntly: "Well, Governor, it all boils down to this. We are doctors, taxpayers, and our taxes support the

Medical School. As we are feeding the cow, we want some of the milk."

A few months after these stirring events, a group of physicians serving on a committee to visit hospitals and study their architecture and management visited the Henry Ford Hospital. With them, of course, was Dr. Sudler. He was full of hope and cheer, told me all the details of the new birth of the School, and added that the department of internal medicine was going to be reorganized and that there was a "strong movement" to call me back as head. I suspected at the time that the "movement" was Dr. Sudler but I subsequently found that his statement was accurate and that others were involved.

One day, several weeks later, a tall, stately gentleman called at my office in the Henry Ford Hospital, introduced himself as Chancellor Lindley of the University of Kansas (*Figure 25*), and said he wished to see the hospital and to meet me. We spent the day together. He looked over our palatial institution, a bit wistfully, I thought, and then told me of the new developments at Kansas. A short time afterwards I received a letter from the Chancellor inviting me to come to Kansas as professor and head of the department of internal medicine.

I did not hesitate long. While I had some very good friends in Detroit, men with whom I had studied as a student in Baltimore, men with whom I had worked in the Johns Hopkins Hospital, yet my roots were in the Middle West. My family lived near Kansas City; many of my old friends lived there, and

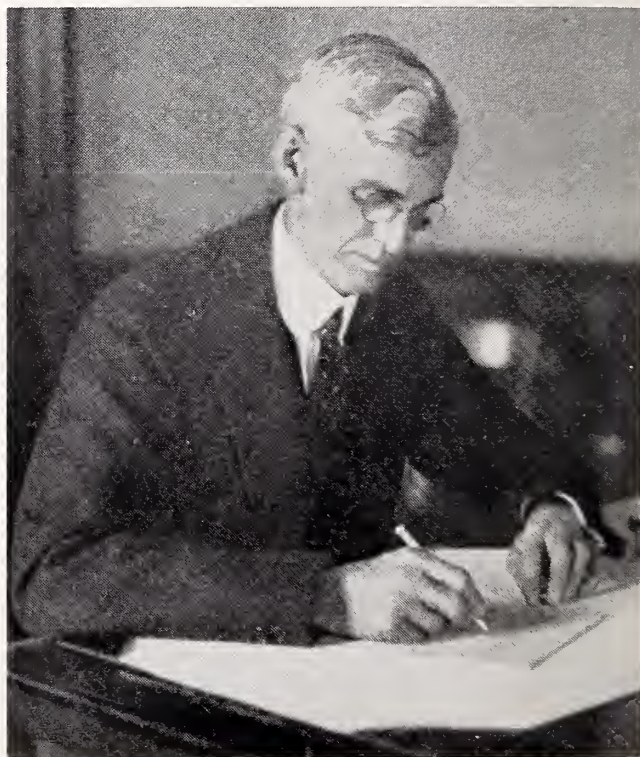


Figure 25. Chancellor Lindley.

in addition, I wanted to be back with my old colleagues who had fought such a long and, at times, apparently hopeless fight in Rosedale. I made only one condition—that the department should have its own clinical laboratory and that the chief of that laboratory should be Dr. Russell Haden, who had the same position in Detroit and who had become a close friend. Dean Sudler did not know Dr. Haden personally but, after hearing my description of him, agreed to my request, and I accepted.

Russell and I arrived in due time, coming from Detroit in our cars with our wives and children. I found much the same group of old friends. My new colleagues in the department of medicine were most kind and genial and expressed their pleasure at my return. Dr. Murphy, urbane and delightful as always, I knew would help me in every way. Dr. Bohan (*Figure 26*), whom I had not known so well as some of the others since his work had been largely at St. Margaret's Hospital, soon became a close friend and ally. I realized in a short time what a superb teacher he was and why the students and alumni held him

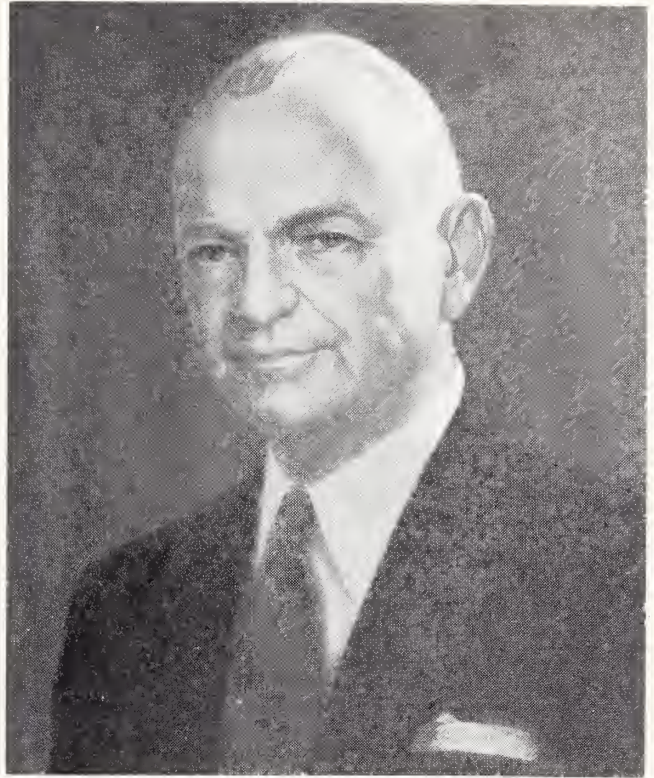


Figure 27. Dr. Leroy Calkins.

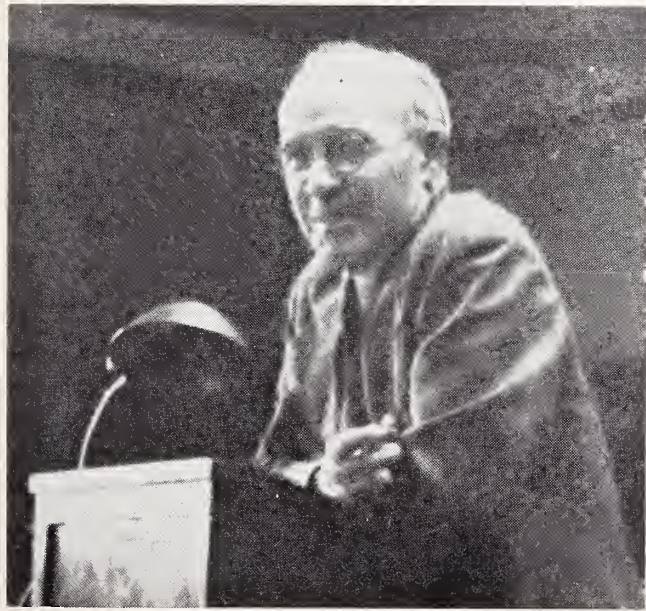


Figure 26. Dr. P. T. Bohan.

in such esteem and affection. I also saw more of Dr. Guffey, who still maintained his reputation as an excellent teacher. Guffey had led the successful drive to raise the funds necessary for the purchase of the new site and was quite active in the affairs of the Medical School. With the years, however, the pressure of his practice became so great that he resigned the chairmanship of his department, although continuing to teach. He was succeeded as chairman in 1929 by Dr. Leroy Calkins, who has consistently headed a well organized department and who himself has been and is an excellent teacher (*Figure 27*).

If the students of obstetrics have not learned their subject, it certainly has never been the fault of the instructors.

One colleague voiced a criticism of the faculty to me. He said that doctors were saying there were too many Hopkins men on the faculty. Sudler, a Hopkins graduate, had not been content with bringing Orr and Wahl but had now brought two more, Major and Haden. I told him I would be discreet. I mentioned that, when the Hopkins men went to New York hospitals, the dean told them not to tell the world they were from Hopkins but let someone else worm it out of them; that in the Army I had heard the constant jibe that the Army had three kinds of medical officers—regulars, reserves, and Hopkins men. I think all four of us—Orr, Wahl, Haden and myself—let someone else worm it out of us.

The Medical School was, of course, still at the old site, but everyone was patient with the shortcomings of the institution, while thinking of how different things would be when we moved to the new buildings. Russell Haden (*Figure 28*) immediately took charge of the clinical laboratory and began to organize the laboratory service with skill and vision.

In addition to his work at the Medical School, Dr. Haden had charge of the laboratory at the Deener Dental Institute, where he carried out important studies on dental infections and dental pathology. Haden was a genial, sunny, engaging fellow, but at times he could be quite positive. I recall one occasion



Figure 28. Dr. Russell Haden.

when I went into the laboratory while Haden was looking rather grimly at three specimens of urine. "Look at this," he said, "three specimens of urine clear as spring water, and the slip reads 'tuberculosis of the kidney, culture for the tubercle bacillus and inject into guinea pigs.' Did you ever see a tuberculous kidney with a clear urine?" Another time he had a patient with a high fever who had an obvious acute pyelitis. On looking over the diagnostic procedures outlined, he saw a lumbar puncture had been ordered. "Why the lumbar puncture?" asked Haden. The intern faltered, "I wanted to be thorough." "Well," answered Russell, "not so thorough this time. Just omit that lumbar puncture."

The clinical material in the hospital, while limited in amount, was very well utilized. We had many interesting patients. I had friendly and cooperative colleagues and, in addition, an unusually good intern—a medical graduate and not a student intern as in the old days. I thought he was an unusual chap and, when the Mayo Clinic wrote me that his name was under consideration for a fellowship, I gave him the best recommendation I could write—faithful, honest, intelligent, industrious. The Mayo Clinic seemed to agree with my estimate, for, after he had finished his fellowship, he remained in Rochester and has for years been the chief of a surgical clinic. I refer, of course, to Claude Dixon.

In 1922, rumors were afloat that a pair of young Canadian doctors in Toronto had discovered insulin, the long-sought internal secretion of the pancreas which would control diabetes. Having some friends

in Toronto, I wrote them for information and received the reply that they had really isolated insulin and, in cooperation with the Eli Lilly Company, were sending certain clinics a limited supply of insulin for clinical tests. A few days later, we received a small shipment of insulin, and, almost as soon as it was received, I began to have telephone calls from patients suffering from diabetes (*Figure 29*). On January 13, 1923, a patient was admitted to the hospital in diabetic coma in an apparently hopeless condition. He was given 40 units of insulin daily and in four days was sugar free and remained so. On February 21, 1923, a second patient was admitted in diabetic coma. We knew at that time very little about the possible toxic effects of insulin, but, as this patient showed a greater degree of acidosis than the first patient, we gave him 75 units of insulin the first day, and, after receiving a total dose of 130 units, he was conscious, rational, and sugar free.

These two patients were the first patients in Greater Kansas City who had ever recovered from diabetic coma, and we felt as Dr. John C. Warren felt when, after operating on his first patient under ether, administered by Morton, he turned to his surgical staff and said, "Gentlemen, this is no humbug." The news of this success spread like wildfire, and soon we had more patients than we could possibly admit to the hospital. And many patients after admission, contrasting our rather modest and not particularly modern looking establishment with some of the more palatial hospitals in Greater Kansas City, wondered why we should have been selected as the hospital to which this wonder-working preparation was sent. But still they came. When the first report on insulin was printed in the *Journal of the American Medical Association* for June 2, 1923, one of the three articles was from the University of Kansas School of Medicine.

One of our great difficulties—a chronic complaint even now—was lack of classroom space. Dr. Bohan was holding his medical clinics in the office of the hospital superintendent, a very unsatisfactory arrangement as chairs had to be brought in for the students and the superintendent and his secretary had to vacate the room and go elsewhere while the clinic was in progress. I persuaded the Dean to allow us to hold our medical clinics in the operating room. From our point of view, it was crowded and cramped, and the students in the racks were almost on top of the patient. From the surgeon's standpoint, it was worse than unsatisfactory since the surgeon had to finish his operation before the hour of the medical clinic, and he, quite rightly, did not feel that such an arrangement contributed to the smooth conduct of an operating room or even to an aseptic technique. However, it somehow worked not only at the old



Figure 29. Diabetic before and after treatment with insulin.

hospital but for several years at the new hospital as well.

Soon after I arrived, one of my new colleagues came up to me and, after a few words of welcome, introduced himself. He told me his name was Logan Clendening (*Figures 30-31*), that he was especially interested in physical diagnosis, and that he hoped to teach it. I felt at once that we were going to be friends, and my first reactions proved correct. In a short time I found that we were very congenial, which usually means that two people look at things the same way. I found that he believed physical diagnosis was one of the pillars of medical education and that one should be wary of the doctor or the student who neglects it. I found that he loved books, that he was interested in medical history, and that, like Osler, he loved to quote the words of great physicians, who, with none of the modern technical aids, saw so clearly and painted such clear pictures of disease for the study of posterity. I recall his horrified astonishment later, when he met a distinguished physician from Birmingham, England, who didn't know who William Withering was.

Clendening at first taught a course in therapeutics, described in the catalogue as a didactic course. It would have been more accurate to have described this course as a didactic course with demonstrations. And such demonstrations! No student ever went to sleep

or even dozed during his demonstrations of gastric lavage or of abdominal paracentesis. The experience of teaching this course stimulated Clendening to write a book on therapeutics. One day he was going down in the elevator in a downtown building with a package of manuscript under his arm when another physician, who had a distinctly chilly attitude towards the School and most of its faculty, spoke the greeting, "Well, well, Clendening. What are you doing now?" Clendening, with all the flush and enthusiasm of a budding author, announced solemnly and softly that he was writing a book. "Oh yes, I know, we all go through that stage."

But Clendening's book didn't belong in the category of books that we all write. Clendening's *Modern Methods of Treatment* was no dry-as-dust compilation but sparkled with medical history, amusing anecdotes, and sound, common sense. Eight editions of it have been published. Henry Mencken, the well-known writer, accidentally saw a copy of it and was so charmed by the writer's style and ability to hold the reader's attention that he persuaded Clendening to write a popular treatise on physiology, and, three years after the publication of *Modern Methods of Treatment*, Clendening's *The Human Body* appeared. This work was an instantaneous success, more than a half million copies having been sold.

Shortly after this, Clendening was urged to write

a daily column of health advice. After long deliberation, Clendening accepted the offer, but, feeling that no one writing a column should see private patients, he closed his office and henceforth devoted himself exclusively to writing and teaching. Physical diagnosis became a second year class as well as a third year

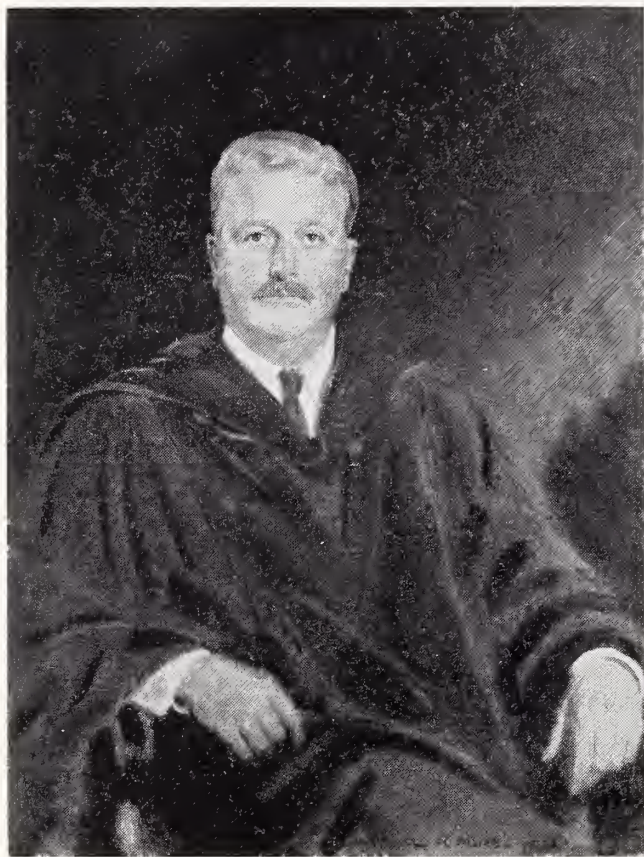


Figure 30. Logan Clendening portrait.



Figure 31. Logan Clendening in the classroom.

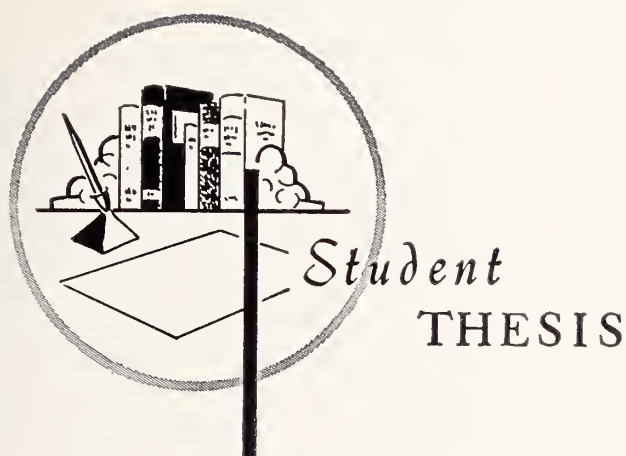
subject, and Clendening took charge of the sophomore course. Here his great interest in physical diagnosis, his familiarity with the historical backgrounds of the subject, plus his wide clinical experience and his striking histrionic ability, soon made this course one of the outstanding courses in the medical curriculum. "You recognize instantly what you have seen before," he would emphasize. "The process of reason is often only to defend your diagnosis before others who see less clearly. The *Augenblicksdiagnose* of Traube has nothing in common with snap diagnoses."

(To Be Continued Next Month)

REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.



The Immunological Aspects of Fertility

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THE INVESTIGATION OF IMMUNOLOGICAL FACTORS concerning fertility and of controlling fertility is far from new. Since the end of the last century there have been many experiments in which materials from the male and female reproductive tracts of various animals, including man, have been employed as heterologous, or homologous immunizing antigens. It has been amply demonstrated that various materials from the reproductive tract contain active immunizing antigens that induce the formation of antibodies detectable by the usual tests of precipitation, agglutination, complement-fixation, immobilization, lysis and anaphylaxis. Immunologically, infertility in certain males can be ascribed to autoantibody responses that may lead to sperm immobilization and agglutination, while in certain females, infertility may be ascribed to a sensitization to antigens present in or carried by sperm as well as to antigens of the seminal plasma. Elucidation of the genesis of these immunologic responses leading to sterility in the male and female provides a strong basis for the development of an immunologic method for the control of fertility and overcoming causal factors in certain cases of infertility.

Mammalian spermatozoa have been known to be antigenic since 1899-1900 when Landsteiner (1899), Metchnikoff (1900), and Metalnikov (1900) observed that injections of sperm or testicular extracts

into guinea pigs resulted in antibody formation. Immediately, reports by von Moxter (1900), de Leslie (1901) and Farnum (1901) appeared which could be used to support the rationale of inducing sterility by immune methods. Pfeifter (1901) injected rabbits with dried and powdered bull sperm extracts and obtained antiserum which reacted strongly with semen solution and testis extracts. Strube (1902) also obtained precipitins by injecting rabbits with human semen and testicular extracts. Metalnikov and Strelnikov (1913) placed sperm and testicular grafts with and without enclosure in collodion sacs in body tissues and recorded antibody production.

By the year 1921, the cumulative evidence motivated an editorial in the *Journal of the American Medical Association* asking, "If spermatozoa invade the female tissue and cause formation of specific antibodies which are capable of preventing fertilization, may not such a process participate in the problem of sterility? May not the traditional sterility of the prostitute depend sometimes on such a process . . . ?" Mayer (1922) postulated that sex intemperance in women could lead to premature rupture of ovarian follicles and, thus, effect sterility. He speculated that during sexual abstinence, however, fecundity could return and cited evidence that during World War I abstinence facilitated postwar pregnancies in previously infertile matings. Vogt (1922) also theorized that women might become sterile following frequent sexual indulgences. He was impressed that couples who failed to conceive had successful matings after periods of separation or abstinence.

McCartney (1923) injected rat or human sperm or testis extract into female rats and observed that sterili-

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Lang is now stationed at the U. S. Naval Hospital, Jacksonville, Florida.

ty of two to 22 weeks' duration was induced. Serologic examinations implied that the infertility was due to the presence of spermatoxins in the vaginal and uterine secretions, since these fluids immobilized and agglutinated sperm. Hektoen and Manly (1923) injected human semen and fluids as well as extracts of human sperm in addition to swine, bovine, and equine seminal fluids into rabbits and observed species and semen-specific precipitins. Kennedy (1924) reported that (a) both male and female guinea pigs could be sterilized by injections of guinea pig sperm; (b) degenerative changes occurred in the testicles of some of the injected males. Pommerenke (1928) observed that (a) the serum as well as the vaginal secretions of female rabbits injected with rabbit sperm or testicular extracts were toxic for rabbit sperm; (b) sterility caused by sperm or testis injections was not due to an effect on the ovulatory mechanism; (c) repeated intravaginal injections of rabbit sperm into female rabbits led to detectable antigenicity in the serum and in the vaginal secretions.

In 1926, Landsteiner and Levine demonstrated that sperm cells of humans of appropriate blood type absorbed specifically and almost completely immune antibodies (from rabbits) to the A and B antigens of human erythrocytes. Also, in 1926 Mudd and Mudd employed electrophoretic and complement-fixation methods to demonstrate that the sperm of man, guinea pig, bull, and ram injected into rabbits induced antibodies which were species-specific, thus, concluding that mammalian sperm possessed both species and tissue specificity. Henle (1938) supported the contention that species specificity of spermatozoa was of a dominant rather than absolute nature, for he found cross reactions between sperm of different species.

In 1940, Cohen and Nedzel concluded that anti-placental antibodies are capable of producing abortion, apparently by specific action on the placenta. The sera of two women known to be habitual aborters gave positive precipitin reactions with proteins prepared from full-term placentas. By injecting preparations of full-term guinea pig placentas intramuscularly into rabbits, obtaining antiserum, and injecting the antiserum into pregnant guinea pigs, they found that abortions occurred in a significant number of animals shortly after treatment.

Doctom and collaborators (1950) presented evidence that bovine isoimmune sera containing antibodies of bovine erythrocytes also reacted specifically with bovine sperm. These authors theorized that antigens recognizable in bovine erythrocytes have similar or identical counterparts in sperm.

At about this time (1950) adjuvants were gaining recognition for their ability to potentiate antibody response. In 1951, Voisin, Delaunay, and Barber

observed that guinea pigs injected with homologous sperm or testis plus adjuvant developed testicular atrophy. They were at first reluctant to ascribe these effects to auto-sensitization since similar effects could sometimes be produced by the adjuvant alone. In 1953, Freund, Lipton, and Thompson established that autologous or homologous testicular material incorporated into adjuvant induced selective destruction of the spermatogenic tissue in guinea pigs, and concluded that the damage produced by the combination of testis and adjuvant was specific and could not be ascribed to the action of adjuvant alone. Voisin and Delaunay were also able to suppress the production of spermatozoa following immunization with extracts of testes. Katsh has further shown that some cross reactivity between guinea pig sperm and human sperm exists because the injection of human sperm into guinea pigs resulted in some testicular damage. The testicular damage elicited by the injections is restricted entirely to the spermatogenic tissue. In the experiments on aspermatogenesis, the effect cannot be transferred by means of serum from an immunized animal to a non-immunized one. The evidence indicated that the syndrome is a form of delayed sensitivity transferrable by means of immunologically competent cells but not by sperm.

Guinea pigs sensitized with homologous or autologous testis plus adjuvant have also been shown to exhibit generalized anaphylactic reactions (Voisin and Delaunay, 1955, and Freund, Thompson, and Lipton, 1955), skin hypersensitivity and Schultz-Dale reactions (Katsh, 1958). Their plasma contains circulating antibodies capable of inducing passive cutaneous anaphylaxis (Voisin, Toullet, and Mauer, 1958). Freund *et al.* (1955) concluded that although the systemic and skin reactions in testis-sensitized animals were typical of anaphylaxis, the testicular lesions represented delayed or tuberculin-type reactions, presumably due to cell-bound antibodies.

Baum *et al.* (1961) reinvestigated the sensitization produced by autologous and homologous sperm and testis in guinea pigs with special reference to the role played by immediate and delayed reactivity. Guinea pigs injected intradermally with homologous sperm or testis in Freund's adjuvant developed the following manifestations of hypersensitivity: (a) histamine release from lungs after treatment with antigen *in vitro*; (b) Schultz-Dale reactions; (c) antibodies capable of passive sensitization *in vitro*; (d) antibodies immobilizing sperm in presence of complement; (e) skin reactions with an immediate and delayed component. These animals underwent typical anaphylactic sensitization, thus providing unequivocal evidence of active and passive sensitization of a typically anaphylactic nature. These investigators have confirmed the findings of previous authors (Metalni-

kov, 1900, Voisin *et al.*, 1958, Freund *et al.*, 1953) that guinea pigs sensitized with guinea pig sperm or testis produced sperm-immobilizing antibodies. Sperm immobilization requires complement in contrast to the previously discussed anaphylactic reactions which do not require complement. Sperm immobilization is a consequence of an interaction of free antibody with intact sperm. By contrast, the anaphylactic reaction is due to an interaction of cell-bound antibody with a component of sperm which is presumably present in solution.

Adjuvants have also been used along with spermatozoa or testis extract for immunization of female rabbits and guinea pigs in recent investigations by Isojima, Graham and Graham (1959) and by Katsh (1959). The results indicate that the fertility of these animals can be seriously impaired. In these experiments it appears that there is little or no effect on ovulation, on number of ova produced, or fertilization. However, there does seem to be a high abortion rate. This is attributed to a possible sensitization of the uterus against spermatozoal so that it gives a delayed type of allergic or anaphylactic response to the spermatozoal antigens.

In 1959, Katsh conducted an experiment with guinea pigs which demonstrated significant reduction in fertility of females injected with homologous sperm plus Freund's adjuvant. A total of 63 female guinea pigs of known fertility were injected intracutaneously with homologous and heterologous sperm in saline with or without Freund's adjuvant. Heterologous sperm consisted of rabbit and bull sperm and were injected with and without the adjuvant. Each injected animal received three injections of the material on alternate weeks. One month after the last injection, a single male was placed with each group of three females for seven days and then the males were rotated among the cages. The experiments were terminated after 320 days beginning from the day the females were first exposed to males. The results indicated that fertility in female guinea pigs was significantly inhibited by injections of homologous sperm adjuvant. No other experimental group experienced such a significant decrease in percentage of fertility matings, although a delay in conception was noted in those animals which received homologous sperm without the adjuvant. These results correspond favorably with those noted previously by Katsh in connection with the higher degree of sensitization of the uteri of guinea pigs injected with homologous sperm in adjuvant than of the uteri of guinea pigs with homologous sperm without adjuvant.

In 1963, Otani and Behrman conducted a series of studies which were primarily concerned with re-evaluating the feasibility of homologous immunization of the guinea pig with testes and sperm. They also

studied the nature and type of antibodies produced as a necessary step to further investigation. Guinea pigs were injected with homogenized adult guinea pig testis and epididymis in Freund's adjuvant in order to produce immunization. The challenging antigens were prepared from the tissues of testis, kidney, liver, and sperm from guinea pig, rat, and rabbit. Proof of immunization was tested by Dale-Schultz, precipitin and agglutinin tests. Results of the Dale-Schultz test revealed that the non-immunized or control group gave no response to either liver, adjuvant, sperm, or testis of any of the three animals, but the immunized animals almost always gave response to sperm or testis only. The strength of response was much higher with guinea pig extract and less so with rat or rabbit. There appeared to be no cross reaction between guinea pig and human or monkey testes. The precipitin test was almost always positive when the guinea pig testis was used as the antigen. When rat and rabbit testes were used as antigens, positive responses were also obtained but at much lower titers, revealing a cross reaction between guinea pig, rat, and rabbit testes, but cross reactions were not demonstrated between them and human or monkey testes. The results of the sperm agglutination tests of the serum, uterine washings, and vaginal fluids revealed positive tests in immunized animals with titers up to 1:512, but only negative tests in the non-immunized animals.

One of the most sensitive tests of antigen-antibody reaction is the uterine response devised by Schultz and Dale. Whereas it is an extremely sensitive test and in some instances specific, more frequently it is sensitive to a group of substances with similar antigenicity. In Otani and Behrman's experiments with a homologous testis and epididymal sperm, the Dale-Schultz test was almost always strongly positive. This has also been shown by Katsh. However, cross reactions, though much weaker, were observed between rat and rabbit testis and sperm, but not between it and human and monkey testis, not between it and liver or kidney. Thus, there is some similarity of antigenicity between testes and sperm of similar species. This fact is also borne out in the precipitin tests. They believe that the uterine contractions induced were due to an antigen-antibody reaction, and more importantly, that the antibody is a tissue-fixing one. This seems to be borne out by the desensitization experiments where repeated challenges by the antigen resulted in successfully smaller uterine contractions until, in some cases, no further uterine contractions could be elicited. Katsh also postulated that if the uterus was sufficiently sensitized and continues to be maintained by further copulations, that possibly the fertility of the female could be affected, since, in the strongly contracted uterus, implantation of the blastocyst could be inhibited or prevented.

The presence of sperm agglutinins in serum of animals heterologously immunized has been reported. Recently, Edwards, after intramuscular injection of rabbits with semen and adjuvant, reported that sperm agglutinins and sperm-immobilizing antibodies as well as precipitins could be detected in the sperm but not in the genital extract. Strauss claimed that heterologous antibodies in the serum seem to pass into the vaginal fluids, and McCartney reported sperm immobilizing antibodies and agglutinins in vaginal fluids of rats immunized with rat sperm. Rumke and Helling (1959) observed all types of agglutination and stated that no correlation could be demonstrated between the type of agglutination, the immobilization effect, the titer of antibody, and the clinical picture. In Behrman and Otani's sperm agglutinin tests high titers were uniformly obtained in the serum but low in the uterine washing and vaginal fluid. Therefore, they believe serum agglutinins were induced and that these homologously induced agglutinins are capable of passing in the genital tract. Where the cervix was included in the uterine washings a somewhat higher titer was found but no explanation for this can be given at this time. They, therefore, believe that it is possible to induce agglutinins and precipitins in the serum to homologous testis and epididymal sperm in the guinea pig, and that these antibodies are passed into the genital fluids and tend to become fixed in the uterus.

Next, Behrman and Otani attempted the same experiment by transvaginal immunization of homologous testis and sperm to determine whether positive uterine responses could be obtained as well as precipitin and agglutinin reaction in the serum. It has been established that many soluble substances can be absorbed across the vaginal epithelium. This has been shown with some of the antibiotics and recently with substances, such as prostaglandin, extracted from human semen. Strauss (1961) was able to show that heterologous antigens inserted in the vagina could produce antibody formation. Previously there has been no indications that antibodies have been produced to isologous antigens inserted in the vagina. This possibility is one of considerable importance, and more so when we think of the isologous antigen as being sperm, semen or testis homogenates.

In Behrman and Otani's experiment an effort was made to keep the antigen in the vagina of a guinea pig for a prolonged period by means of repeated instillations, which presumably aided in its absorption and in the production of antibodies. When Freund's adjuvant was used in addition to the intravaginal instillation of antigen, circulating agglutinins and precipitins were produced and could be detected in the serum and vaginal fluids, but could not be elicited without the use of the adjuvant. However, even if

circulating antibodies could not be detected, whether or not they used adjuvant, the Dale-Schultz reaction was always positive. This led them to believe that there may well be a tissue-fixed antibody in the uterus, which has previously been described.

These antibodies cannot be said to be specifically anti-sperm in nature, since it is not known at this time what exact antigen produces this response. Thus, whatever the nature of the antibodies produced by this technique, it is still necessary to show that their presence is of significance in the inhibition or reduction of fertility, especially as it is well known that the mere presence of a circulating antibody does not necessarily mean that it has any clinical significance. To determine the significance of these antibodies and so illustrate the point, Otani and Behrman conducted a series of experiments whereby ovulation was induced in the guinea pig, followed by artificial insemination of both immunized and non-immunized animals. Three groups of non-immunized female guinea pigs were artificially inseminated with washed epididymal sperm. In Group I, the sperm was diluted with Locke's solution, in Group II it was pretreated with normal serum, and in Group III it was pretreated with immune serum. No significant reduction of fertility was observed. Group IV consisted of immunized animals inseminated with sperm diluted in Locke's solution only. These animals showed a very definite reduction in the pregnancy rate, from 78 per cent to that of 34.6 per cent, and a reduction in the embryo count from 28.6 per cent to 7.9 per cent. Eight more animals passively immunized were inseminated and showed a reduced fertility rate of the same magnitude as those actively immunized. A weak Dale-Schultz reaction was obtained in these animals as well. Thus, it would appear that there is a reduction of fertility as a result of immunization.

There is also the possibility that sometimes an autosensitization process occurs in males so that anti-spermatozoal antibodies may appear in the serum of an individual and may affect spermatogenesis or cause agglutination of the mature sperm. The work of Wilson in 1954 advanced this aspect of male infertility when he demonstrated that agglutination of normal sperm was produced by the seminal plasma and blood serum of two patients whose spermatozoa exhibited autoagglutination. This work was carried further by Wilson and by Weil and associates. It was revealed that the wives of two infertile men conceived promptly after artificial insemination by donor. In the study of Weil, Kotsevalov and Wilson (1956) the findings were interpreted as indicating that seminal plasma contains highly antigenic material which is distinct from that of sperm, thus suggesting that the antigenic material found associated with human sperm originates from the accessory organs of reproduction rather

than from the testes. In 1959, Rumke and Helling reported findings of an extensive examination of the sera of 2,015 "sterile" men. They found approximately three per cent of these men to have sperm agglutination titers of 1:32 or higher. Of the 67 patients with sperm agglutinins in their sera, 21 were azoospermic. Since these observations indicate that an antigen-antibody type of reaction may be involved in some types of infertility, further observations have been made to establish the clinical significance of the occurrence of sperm agglutinins.

In 1961, Nakabayashi and Tyler obtained blood sera from infertile men and women visiting their clinic. This serum was examined for sperm agglutinins against sperm from two different donors in two different laboratories. Although the number of positive cases was low, a definite percentage of these individuals possessed agglutinins for sperm.

These observations stimulated Katsh (1961) to attempt to determine whether the antigens of human seminal plasma could be isolated, purified and identified chemically. Application of a variety of procedures resulted in the isolation and tentative identification of at least four antigens from guinea pig spermatozoa. One is a hyaluronidase, another is a nucleic acid containing moiety, a third is a protein, and a fourth is a polysaccharide. Hyaluronidase is normally present on spermatozoa and readily released therefrom. Katsh has demonstrated that hyaluronidase exhibits species specificity, but organ specificity has not yet been ascertained, although Katsh was unable to find hyaluronidase in any parenchymatous organ of the guinea pig. If a vaccine containing hyaluronidase is to be employed to confer infertility, it would be most instructive to assure that organ cross-reactions would not occur. The nucleic acid-antigenic fraction is closely associated with both RNA and DNA, but it is not known precisely how the nucleic acids are involved in the association with the antigenic material. It is possible that the nucleic acids may not be the direct antigenic materials, but rather form hapten complexes with another unit to form the complete antigen. The protein-antigenic fraction has a characteristically low mobility, electrophoretically, which is reminiscent of serum alpha globulin. The polysaccharide antigen appears to exhibit organ specificity since Katsh was unable to extract any similar material from other organs of the guinea pig. It appears to be quite closely bound to sperm and possibly complexed with a carrier molecule. Only by the application of ultrasound can adequate amounts be extracted satisfactorily.

As previously stated, the seminal plasma of man and other mammals contains a strongly antigenic and highly organ and species specific compound (Weil and Kotsevalov, 1956; Weil and Finkler, 1958; Weil,

1961). In man and rabbit, this antigen coats the spermatozoa during their passage through the adnexal structures of the male genital tract. This coat dominates the antigenic behavior of seminal spermatozoa in contradistinction to that of the testicular ones (Weil and Rodenburg, 1960). Isoantigenicity of the spermatozoa-coating antigen (SCA) has been demonstrated in the rabbit (Weil and Finkler, 1959). As to the point of origin of SCA, previous studies revealed that vesicle fluid and aqueous extracts of seminal vesicles and of prostate react with anti-SCA sera in complement-fixation tests. Further investigations by Weil and Rodenburg in 1962 revealed evidence obtained by the use of fluorescein-conjugated antiserinal plasma immune globulin showing that SCA originates in the seminal vesicles.

While considerable attention is being paid to the antigenic material obtainable from spermatozoa and seminal plasma, other closely related problems are not being ignored. For example, the participation of the adjuvant in the sensitization process is still under active investigation because of the need for precise definition of the vehicle in which the antigen is to be administered. Also, of vital importance is the knowledge of the fate of the injected antigen and the kind and location of the resultant antibody. Therefore, it is essential that the proposed antigenic materials be identified before any concerted attempt to control fertility by immune methods are undertaken.

In 1960, Behrman *et al.* presented an immunological concept as a possible etiological factor for unexplained infertility in anatomically and physiologically healthy couples. The human ABO blood groups comprise a system of interactions of substances normally present in the body, rather than resulting from some immunization process. In 1929, Landsteiner and Levine demonstrated that sperm cells of humans of appropriate blood type absorbed specifically and almost completely immune antibodies from rabbits to the A and B antigens of human erythrocytes. Following the discovery (Levine and Stetson, 1939; Levine, Katzin and Burnham, 1941) of immunization of the mother by Rh antigens of the fetus, and the transfer of the antibodies back across the placenta to damage the foetus, there have been many investigations of the possibility of a similar antifertility effect in the ABO system. Behrman's concept is based on incompatibility of the ABO(H) blood group system wherein the antigens carried by the spermatozoa are blocked or immobilized by the antibodies present in the cervical secretion. In the ABO(H) blood group system incompatible mating, the offending antibody is a "naturally occurring" one and most frequently involves the type O wife and a type A or AB husband. The presence of these naturally occurring antibodies has

been detected in almost all the body secretions, notably in the saliva and in the cervical secretions. These antibodies are most significant in the type O wife because she may have both the anti-A and anti-B present. Gullbring (1957) showed that human spermatozoa have the ABO(H) group-specific antigens on their cell walls, and that these sperm can be agglutinated by ordinary anti-A and anti-B sera. On this basis, Behrman *et al.* postulated the possibility of infertility resulting from incompatibility of an ABO blood group mating, at the cervical level, involving most frequently a type O wife and type A or AB husband. In their investigations they found that there was a significantly higher level of such incompatible matings (87.3 per cent) in 102 physiologically normal but infertile couples originally labeled as infertile subsequently became pregnant after a minimum of ten years of trying. All the matings of these several couples are incompatible (i.e., AO having both O and A or B sperm). Apparently, the cervical secretions contained anti-A or anti-B, thus blocking the A or B sperm but permitting the O-carrying sperm to pass and fertilize, as the resulting offsprings were all blood type O. This further supports their postulate, and indeed indicates that this effect may operate on the fertilization process resulting in infertility.

For the past two years, Franklin and Dukes have been investigating the immunological aspects of unexplained infertility. It has been amply demonstrated in the past that materials from the reproductive tract contain antigens capable of inducing the formation of antibodies, detectable by the usual serological tests. The majority of these reports have involved the infertility aspects, or contraceptive potential of these immunologic phenomena. The existence of circulating antibodies was reported in a small percentage of women tested by Nakabayashi, Tyler, and Tyler in 1961. Unfortunately, little effort was made to categorize these individuals as to fertility status. The report of Franklin and Dukes describes an attempt to establish the frequency of occurrence of circulating antispermatozoal antibodies in women whose fertility status has been determined and categorized.

All patients in this study were assigned to one of five categories strictly on the basis of history and clinical evaluation: Group A—Patients with no demonstrable organic cause for infertility, Group B—Patients with organic causes for infertility (endometrioses, anovulation, leiomyoma uteri, pelvic inflammatory disease, or hypospermia), Group C—Patients of known fertility (presently pregnant or delivery of a normal child within past two years), Group D—Patients of unknown fertility (couples using contraception and unmarried women), Group E—Patients with secondary sterility (after one or more pregnancies patients were unable to conceive

for a minimum of three years). The patient's serum was tested for antispermatozoal activity against the ejaculate from her husband and against ejaculates from a minimum of three other men. A complete semen analyses was performed on each sample by a standard method. When evidence of agglutination of sperm was detected, blood was obtained from both conjugal partners for ABO(H), Rh, and MN typing and tested for compatibility by major and minor cross-matching. The results obtained on 214 patients tested revealed 72.1 per cent of the patients in Group A had sperm-agglutinating antibodies. In contrast, only 8.4 per cent were found to possess sperm-agglutinating antibodies in Group B; 5.7 per cent in Groups C and D, and only 5.6 per cent in Group E. Of the patients in Group A (no demonstrable cause for infertility) who possessed circulating sperm-agglutinating antibodies, 38 per cent were ABO(H) incompatible matings as determined by blood typing and cross-matching of both husband and wife.

In an effort to determine the role of repeated vaginal deposition of semen in the maintenance of sperm-agglutinating antibody titers, 13 couples were persuaded to restrict intercourse to the use of condoms or to abstain from intercourse from two to six months. The antibody titers declined noticeably in all 13 women and dropped to non-detectable levels in ten. These ten patients were encouraged to resume unrestricted intercourse at the time of expected ovulation, with the result that nine became pregnant. This provides a strong indication of a relationship between the presence of circulating sperm-agglutinating antibody and infertility.

These pregnancies, correlated with the disappearance of sperm-agglutinating antibodies, received additional significance from the recent report of Behrman and Nakayama. Rabbits immunized intradermally and transvaginally with homologous epididymis and testis produced antibodies detectable by precipitin and tanned cell hemagglutination techniques. Immunized rabbits were refractory to conception by mating as long as circulating antibodies were demonstrable. Many exhibited a rise in antibody titer when mated during this refractory period. Mating of immunized rabbits four weeks after the disappearance of detectable antibody resulted in pregnancy.

It is obvious from the work of Franklin and Dukes, and the work of Behrman, Katsh, Weil, Baum and others, that a variety of antibodies can be elaborated by the female in response to intravaginal or parenteral introduction of semen, its components, or epididymal and testicular antigens. One of the major problems remaining is to determine

(Continued on page 474)



A Mass in the Jaw

Edited by **ROBERT LOVETT, M.D.**, *Kansas City, Kansas*

Dr. Stanley R. Friesen (Moderator): Dr. McKinnon, will you present the first case?

Dr. Douglas McKinnon (Resident Physician in Plastic Surgery): This patient is a 25-year-old woman who presented at KUMC for the first time on February 6, 1966, with the chief complaint of a mass in her left jaw. Her present illness began in August, 1965, when she developed pain in the posterior portion of her left mandible. At this time, she saw her dentist who took x-rays and was unable to make any diagnosis from the x-rays. The second and third lower left molars were removed. She continued to have pain and sought out another dentist who made a diagnosis of dry socket and curetted this region and she obtained some relief. Three months prior to admission the patient delivered a baby by cesarean section and after this she noted a mass in the left pre-auricular area. This mass progressively enlarged and was quite tender and subsequently produced trismus.

Dr. Friesen: What does the term trismus mean?

Student: Lockjaw, usually due to tetanus. It is a spasm of the levator muscles of mastication which prevent opening of the jaw.

Dr. David Robinson (Plastic Surgeon): There are about six situations in which trismus may occur. First, as the student mentioned, it is found in tetanus, commonly called lockjaw. Second, it sometimes occurs after dental extraction, particularly when local anesthetics are injected around the nerves of the jaw. Third, a local anesthetic injection alone will sometimes cause trismus. Fourth, chronic osteomyelitis of the jaw may result in trismus. Fifth, trauma to

the jaw and fracture of the neck of the condyle will cause reflex muscular spasm and trismus. Last, occasionally we see young girls who say that they are unable to open their jaws and this is of hysterical nature.

Dr. McKinnon: When the patient presented at KUMC, she had a mass near the angle of the left mandible which measured approximately $2 \times 2\frac{1}{2}$ cm. It was discrete, warm and tender but it was not spontaneously painful. There was no evidence of facial nerve involvement and there was no enlargement of cervical lymph nodes. There were no other significant physical findings.

Student: Was the mass movable?

Dr. McKinnon: The skin over the mass was quite tense and fixed and the mass was solidly fixed to the underlying bone. In one region it was fluctuant.

Student: Was any calculus palpated in Wharton's duct?

Dr. McKinnon: No.

Student: Did the patient continue to have trismus?

Dr. Robinson: Yes, her mouth was so tightly closed that it would not admit the tip of the little finger.

Dr. Friesen: Are there any other points in the history that you would like to mention?

Dr. McKinnon: There is apparently no other significant historical information. She did have a sinus operation 20 years ago. She has had no contact with cats, cattle or other farm animals.

Dr. Friesen: Were there any pertinent laboratory findings?

Dr. McKinnon: The only other pertinent labora-

tory finding is that she had a white count of 11,500 with a slight shift to the left.

Student: Was the skin over the mass and oral mucosa under the mass intact?

Dr. McKinnon: Yes, there was no alteration or drainage either to the outside or into the oral cavity.

Dr. Friesen: Would any of the students care to proffer a diagnosis?



Figure 1. X-ray showing cystic area (arrows) in the ramus of the left mandible.

Student: Benign tumor of the parotid, possibly a mixed tumor.

Another Student: Acute and chronic parotitis.

Dr. Friesen: What do you think the etiology of her parotitis might be?

Student: I don't know.

Another Student: Was her pain temporally associated with meals, I mean, did she have any pain during periods of increase in salivation?

Dr. McKinnon: No.

Student: Did she have any difficulty with lacrimation?

Dr. McKinnon: No.

Student: Did she ever have a fever or cough?

Dr. McKinnon: No.

Dr. Friesen: May we see the x-rays now, please?

Dr. Richard Morrison (Resident in Radiology): There is a defect in the lateral views which is quite characteristic of a sequestered fragment of bone in the anterior portion of the ramus of the left mandible, just below the coronoid process. There is another cystic area just below the notch in the ramus between the coronoid process and the condylar process. The

postoperative x-ray (Figure 1) reveals the extent of bone destruction more clearly. The tangential views of these bony defects show bone being extruded medially from the ascending ramus. The pattern is that of osteomyelitis of the ascending ramus of the mandible with sequestered bone. I cannot see definite evidence of extension down into the body of the mandible, although there could be some involvement considering the possible lytic area just above the mental nerve canal at the level of the remaining tricuspid tooth.

Dr. Friesen: Dr. Masters, at this point what was your diagnosis?

Dr. Frank Masters (Plastic Surgeon): We felt that this was osteomyelitis of the mandible, probably secondary to tooth extraction and her dry socket.

Dr. Friesen: What is meant by a dry socket?

Dr. Masters: Ordinarily, when a tooth is pulled the cavity is filled in with granulation tissue. Sometimes, because of inadequate vascular supply or because of infection, granulation tissue does not form and the cavity is lined with bare bone. This is usually quite painful.

Dr. Friesen: Dr. Masters, could you briefly classify tumors of the parotid gland?

Dr. Masters: Broadly speaking there are: (1) neoplasms, both benign and malignant; (2) infection with obstruction of Wharton's duct, so-called surgical parotitis; and (3) infection without obstruction, so-called medical parotitis.

Dr. Friesen: What was your preoperative diagnosis in this case?

Dr. Masters: Osteomyelitis with extension into the parotid gland.

Dr. Friesen: Don't malignant tumors of the parotid gland also tend to be stony, hard and tender?

Dr. Masters: Yes, paradoxical to the situation with other tumors, the benign tumors of the parotid are usually non-tender whereas the malignant ones are often times tender. In fact, the diagnosis of the referring physician was malignant tumor of the parotid gland.

Dr. Friesen: Dr. Robinson, will you describe the operative procedure?

Dr. Robinson: Since we were unable to open the patient's mouth, she was intubated through her nose. Fortunately, no difficulty was encountered during this maneuver. Then, as we obtained anesthesia, I was able to open her mouth and we explored the inside of her mouth, hoping not to have to make any incision from the outside. We made an incision over the retromandibular portion of the buccal mucosa and pushed the soft tissues away from the bone and thereupon entered a soft area consisting of abscess cavity and crumbling bone. We curet-

ted away dead bone and found that the inferior alveolar dental nerve was destroyed. We then put an elevator along the masseter and internal pterygoid muscles and entered into a considerable amount of dark brown, grumous, purulent material. At this time we knew that this was a periosteal abscess beneath the parotid, but we did not yet know the etiology. Having cleaned out the inside of the mouth and putting a pack over the hole in the bone, we still felt that we had not obtained adequate drainage. Therefore, we went to the outside and inserted a needle in the fluctuant area of the parotid and obtained approximately 1 cc. of dark, brown, purulent material which we sent to the pathologist. All he could tell us was that these were inflammatory cells. We then made an incision below the angle of the mandible and identified the marginal mandibular branch of the facial nerve to avoid destroying it, and dissected under the masseter muscle along the surface of the bone until we again entered the abscess cavity and we biopsied a few small pieces of tissue and inserted a drain. At this time we only knew that this was a chronic smoldering infection which we did not think was the ordinary acute pyogenic osteomyelitis, since there was rather limited destruction and since she had had no acute flare-ups during her three month history. Also the aspirated material was submitted to bacteriology for routine and fungus cultures.

Dr. Friesen: Dr. Mantz, will you present the pathology?

Dr. Frank Mantz (Pathologist): The specimen we received consisted of approximately 1 gram of small irregular fragments of soft tissue and bone. Microscopically, we saw necrotic material heavily infiltrated with an acute and chronic exudative type of inflammatory infiltrate, namely polymorphonuclears, lymphocytes and macrophages. This was entirely nonspecific and in no way identified the etiologic agent. In other areas there was abundant granulation tissue with numerous newly formed capillaries and fibroblasts. This appeared to be the limiting membrane of an abscess cavity. In other areas, scattered throughout, there were a few large giant cells of foreign body type, which in no way lent an appearance of specificity to this lesion. Examination of the bony fragments showed that there was distortion of the bone with characteristics of chronic osteomyelitis in that the marrow spaces were filled with organizing fibroblastic tissue which suggested that the process had been present for a considerable period of time. As predicted in at least one area by x-ray, there were fragments of necrotic bone deposited in the inflammatory tissue which gave the appearance of a sequestrum being extruded by the inflammatory

process. Attendant with this in adjacent areas there were foci of new bone formation suggesting that this may very well be a portion of the involucrum which normally surrounds the sequestered necrotic bone in osteomyelitis.

The purulent exudate contained irregular bodies (Figure 2) consisting of a dense central hematoxyphilic tangled mass with a peripheral eosinophilic zone. There were a number of polymorphonuclear leukocytes adherent to the outer surface of these bodies. As you all have probably surmised by now, this is actinomycosis of the classical variety. This dis-

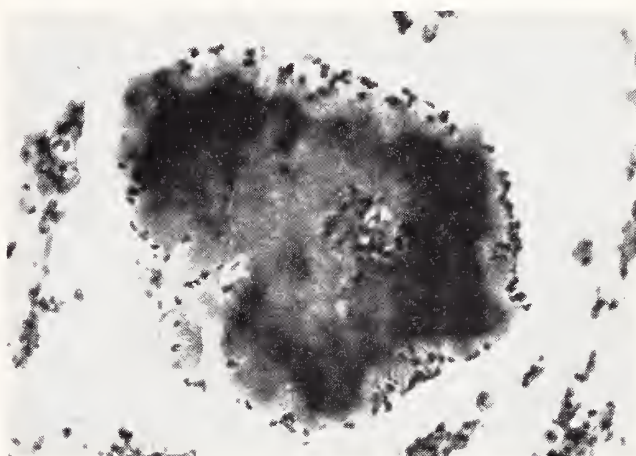


Figure 2. High power view of *Actinomyces israeli*, found in the material curetted from the left mandible.

ease is produced by two species of organism, *Actinomyces israeli* and *Actinomyces bovis*, the latter being generally found in agricultural animals. This is a very common mycotic infection which has a tendency to involve the cervico-facial area, as we see in this case, and also the abdominal and thoracic regions.

Actinomyces israeli in its normal habitat is found only in the human, generally in the nasopharynx and oropharynx. Quite possibly it is a saprophyte in tonsillar tissue. Infection in the human being is, therefore, endogenous and transmission from man to man does not occur unless, of course, there is direct inoculation. The classical cervico-facial type is characterized by a common train of events. There is usually some injury to the oral mucous membrane, not infrequently the removal of a tooth, usually from the lower jaw. The infection spreads in the manner of a cellulitis to produce the multiple indurated areas producing a picture which is frequently referred to as "lumpy jaw" when it is seen by the veterinarian in cattle. There is usually involvement in adjacent bone producing osteomyelitis as we have seen in this case. In due course of time, suppuration follows with the formation of sinuses which discharge to the surface. The resulting picture is that of multiple

areas of induration with many draining sinus tracts. This condition remains persistent and the sinus tracts tend to multiply if therapy is not initiated. It should be pointed out that the discharge from the sinus tract may be diagnostic in that it may contain minute yellow granules that not infrequently accumulate on the gauze dressing over the sinus tract. If these are crushed and examined under the microscope, these so-called sulfur granules will be found to consist of dense, matted clusters of elongate and branching organisms surrounded by the narrow zone of eosinophilic material at the periphery which is the result of a host reaction and consists mainly of fibrin and other serum proteins probably representing antigen-antibody complexes. It should also be mentioned that involvement of lung may be clinically misinterpreted as carcinoma. A most common site of involvement is in the abdominal region, particularly in the right lower quadrant. This generally has its origin in the appendix and this is sometimes clinically misinterpreted as a carcinoma in the area of the cecum. In due course of time, this lesion may also suppurate with the formation of multiple draining sinus tracts on the anterior abdominal wall.

A portion of the purulent material was submitted to bacteriology and classical *Actinomyces* organisms were cultured on routine culture media at 37° C. under anerobic conditions.

Dr. Friesen: Were any yellow granules found at time of operation?

Dr. Robinson: No.

Dr. Friesen: In the early days of my residency, I recall that the surgical treatment of actinomycosis, whether cervico-facial, thoracic or abdominal was rather extensive with repeated incision, curettage and unroofing of the sinus tract. What is the current treatment of choice, Dr. Robinson?

Dr. Robinson: Penicillin is the treatment of choice today and is better than any surgical treatment unless, of course, one finds large loculated areas of necrotic tissue which should be surgically removed. This patient is currently being treated with a new antibiotic, Cephaloridine, which has a bacteriocidal spectrum similar to penicillin. She has remained afebrile and her postoperative course was quite uneventful.

Student Thesis

(Continued from page 470)

which antibody, or combination of antibodies, bears the responsibility for the establishment of immunologic infertility. Also, the site of reaction of the antigen-antibody combination in vivo and the manifesta-

tions of that combination in relation to immunologic infertility need to be elaborated definitely. At present, on the basis of this report, it can be stated only that the presence of circulating sperm-agglutinating antibody in women is correlated with unexplained infertility. The circulating sperm-agglutinating antibody may be only a reflection, or indication of the immunologic process involved and not specifically responsible for the state of infertility.

It is clear that a major advance in an understanding of immunologically-based clinical cases of infertility in human males and females awaits a firm knowledge of the chemical identity of the antigens involved. This knowledge could provide the application of several theories: (1) If certain cases of infertility in males and females can be attributable to sensitization to seminal plasma antigens, the identification of such antigens might assist in therapeutic procedures, (2) If a program of immunization for the control of fertility were to be instituted, the use of specific antigens from seminal plasma might be more advantageous than the employment of antigens from other sources. The importance of this concept is quite evident by the part it may have in resolving the world's major problem of population control, and no less serious in the tragic plight of infertile mates who so desperately desire offspring. Equally, it must be recognized that any concerted attempt to control fertility by immune methods would be suspended until the proposed antigenic materials could be identified.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

New Film Available

(Continued from page 458)

5. Dunlop, Edwin: The Treatment of Depression in Private Practice. *Dis. of Nerv. Syst.* Vol. XXII, No. 5:46-49, May, 1961.

Film Information

Running Time: 22 minutes, 16 mm., sound and color.

Produced by: Sturgis-Grant Productions, Inc.

Sponsored by: Lakeside Laboratories, Inc.

The film is available on loan without charge.

To schedule a showing of THE MEASUREMENT OF DEPRESSION, please see your Lakeside Professional Service Representative or write or phone: Medical Film Department, Lakeside Laboratories, Inc., 1707 East North Avenue, Milwaukee, Wisconsin 53201.

The President's Message

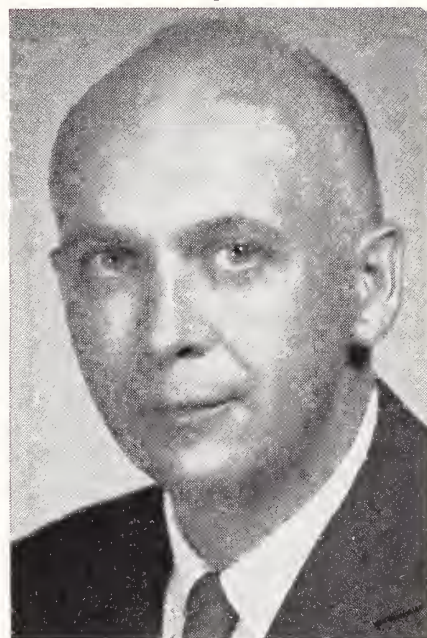
DEAR DOCTOR:

The Council District meetings are now being scheduled. We expect all eighteen will be held before the Christmas holidays. This is the one meeting of the year to which you and your wife are invited and which is held near your home. The president or president-elect of the Auxiliary and of the Society expect to attend each of these events.

You will recall they begin with a dinner after which the wives and the doctors attend separate meetings. We hold a most informal session. Dr. Gsell or I expect to tell you of projects in which your Society is involved. This year we will speak to you of several problems we anticipate during the legislature. Then, we ask you for advice and suggestions upon any subject you may have in mind.

This is the one meeting held each year where we hope you will tell us what you think your Society might do better and how. We think you will find the meeting interesting and, we believe, informative. We know you can help us and most especially, because we need your help, I want to extend to each of you and your wife not only an invitation to attend the meeting in your district, but let me make this a personal request.

Our need for your help is urgent. So we look forward to this event, but most of all, for your advice and assistance.



Sincerely,

James H. McClure M.D.

President



The System of Medical Practice in New Zealand

Before going to New Zealand in November of 1965, I discussed with Dr. George E. Burket, Jr., the feasibility of studying the system of medical practice, hoping that some clue toward better implementation of Medicare might result. In this study ten doctors in varying specialties and two prominent newspaper editors were interviewed. Mr. John Page, night editor of the *New Zealand Herald* of Auckland furnished me with the Report of the Department of Health for 1965, and many other items from newspaper files which proved helpful.

The history of government control of the care of the sick dates back to 1938 when the politicians, with the view only of being re-elected to office and without accepting any advice from the New Zealand branch of the British Medical Association, passed an autocratic law which gave complete power to the Minister of Health. This proved so unsatisfactory that it has been amended 15 times. This has brought about the present system of partial subsidation so far as the remuneration to physicians is concerned, and total payment by the government for institutional care of the sick and injured. An article published in the *New Zealand Medical Journal* in the early part of this development is replete with efforts to halt the socialistic trend. It reminds one of the efforts of the American Medical Association back in the days of the struggles about the Wagner-Murray-Dingle bills.

The capitation system of payment to physicians was removed by one of the amendments, but the medical officer of health theoretically has considerable voice in the relationship between physician and patient. This is recorded carefully in the booklet entitled *Health Benefits in New Zealand*. In talking with people, all of whom expressed satisfaction with the system, I found a unanimity of opinion that they

were free to choose their physician. They are resigned to the fact that distance must not be too great between the general practitioner and the patient. Incidentally, the practitioner's office is always called a "Surgery."

All of the physicians with whom I talked freely explained the system by which they are paid. The government pays 7 shillings, 6 pence (7/6) for each call either in the surgery or for making a house call. The patient is expected to pay an equal or greater amount, depending on the service rendered or the distance the physician has to travel. Even the specialists have their "Surgery" and see some patients. This seems to be necessary, for the government pays 1,000 pounds as a salary, which would amount to \$2,800 annually.

In the general economy of the country it was quite evident that all endeavors were more socialized or government managed than the practice of medicine, which is subsidized about 40 per cent out of the social security budget. This has brought about, in this small country, a situation where there are neither extremely rich nor extremely poor people, nor is there any unemployment.

Complaint about high taxes was universal. The social security tax is 7½ per cent of every income and I was reliably informed that this fell short of meeting the expenses. In New Zealand the pound is \$2.80 and a shilling amounts to approximately 14 cents (incidentally, in 1967 the monetary system will change to dollars and cents and Australia has already made this change). Not all of this 7½ per cent tax is for medical care as they pay other benefits in social security, such as a certain amount for each child in a family. It is difficult to know exactly the difference.

The chief complaint of the system is overusage, particularly of drugs. For instance, just before we

were there the *Auckland News* published a full page feature, with pictures, of an elderly couple in whose home 9,700 tablets and capsules of medicine had been found. Many were barbiturates and narcotics. Part of this difficulty can be blamed on the fact that each physician has to see 40 to 50 patients each day and people seem to like to take medicine.

Another newspaper article documented an occasion when a hospital was so understaffed that a resident worked steadily for 24 hours, and fatigue prevented him from properly caring for the load of patients needing attention.

The educating of physicians is modern and their examination before being admitted to practice seemed adequate. Their opportunity for continued education is somewhat more limited than ours. They have access to all modern scientific literature, and specialty training is the responsibility of each physician.

A letter last week from a senior citizen and a veteran tells me that the doctors have raised from 7/6 to 12/6 the amount the patient is to pay whenever he receives services, and the government subsidy remains at 7/6. This partial subsidy by the government has a tendency to prevent overusage so far as physicians are concerned. Payment for all ancillary services and products by the health service has become a financial burden to the social security system.

Many more details could be included, but in this brief report the essentials are stated. In summary, the patient can choose his physician, and the fact that he pays a part of the fee for service keeps this system from being completely socialistic.

L. S. NELSON, M.D.
Salina

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in May, 1966 and 1965

<i>Diseases</i>	<i>May</i>		<i>5-Year Median 1962-1966</i>	<i>January-May Inclusive</i>		<i>5-Year Median 1962-1966</i>
	<i>1966</i>	<i>1965</i>		<i>1966</i>	<i>1965</i>	
Amebiasis	1	1	4	4	1	10
Aseptic meningitis	—	—	—	—	3	1
Brucellosis	2	2	2	3	2	3
Diphtheria	—	—	—	—	1	—
Encephalitis, prim., infectious	—	2	1	—	7	6
Encephalitis, post-infectious	—	1	*	—	4	*
Gonorrhea	277	197	219	1165	977	1165
Hepatitis, infectious	13	29	26	90	281	281
Meningococcal meningitis	1	2	1	7	11	7
Pertussis	3	—	3	6	8	11
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	—	2	2
Salmonellosis	15	31	15	77	113	77
Scarlet fever	10	3	10	75	56	75
Shigellosis	2	26	2	34	59	34
Streptococcal infections	229	123	100	1367	1902	1024
Syphilis	125	94	100	477	396	477
Tinea capitis	5	6	5	25	26	40
Tuberculosis	25	30	25	135	98	114
Tularemia	—	1	1	—	2	4
Typhoid fever	—	—	—	2	—	—

* 5-year median not available

AMA House of Delegates

Report of Actions Taken at the 115th Annual Convention, June 26-30, 1966, Chicago

Your Kansas delegates are of the opinion the following actions taken by the 1966 AMA House of Delegates represent the most significant among more than 100 which were introduced.

Usual and Customary Charges

Although further study was recommended and a refined definition is anticipated for consideration at the interim session, the following was adopted:

Usual relates to the individual physician and the charge which he most commonly establishes as fair recompense for specific services.

Customary relates to the range of usual charges made by physicians of similar ability and experience for the same service within the same specific socio-economic and limited geographic area.

Resolution No. 19, also on the above subject, says in part:

. . . That the American Medical Association resist any effort by any governmental or other agency to establish fixed fees for physicians' services and procedures under the physician's supervision. . . .

. . . That any organization associated with the American Medical Association involved in discussions or negotiations of contracts involving doctors' fees negotiate on the basis of the "usual, customary and reasonable fees." . . .

Hospital-Based Specialists (Resolution No. 73)

WHEREAS, It is regrettable that publication of Medicare Regulation No. 5 was delayed until June 28, 1966, three days before the effective date of Medicare; and

WHEREAS, These regulations do not conform to the intent of Congress as expressed in Sec. 1801 of the Medicare Law; therefore be it

Resolved, That the House of Delegates instruct the Board of Trustees and the Executive Vice President to request from the Social Security Administration an extension of date of final adoption of the proposed regulations of not less than 90 days, in order that the American Medical Association and all other interested medical organizations be allowed reasonable time to study, and to submit to the Social Security Administration data, views or arguments and pertinent constructive comments and suggestions; and be it further

Resolved, That to preserve the professional independence of medical practice that the Board of Trustees and Officers of the AMA be instructed to immediately inform the membership that Medicare Regulation No. 5 will not apply to physicians (whether hospital-based or not) who

1. have no financial relationship with a hospital covering medical services to patients.

2. do not accept assignments but bill directly.
and be it further

Resolved, That the *AMA News* and other appropriate media be used to advise all physicians who are developing contractual relationships with hospitals for professional service that they should delay the finalization of any agreements pending further analysis of the implementing regulations, when such contractual arrangements are being considered at the appropriate time that such contracts for hospital medical services should be made only by and through the hospital medical staff.

On a similar subject was Resolution No. 104:

WHEREAS, The Principles of Medical Ethics declare that a physician shall not dispose of his services to a third party or "lay" organization, and

WHEREAS, Title XVII of Public Law 89-97 recognizes the principle of the separation of professional and hospital costs for services rendered by hospital-based physicians; and

WHEREAS, This principle has been advocated by the AMA, the American College of Radiology, the American College of Pathologists, and many regional organizations, and

WHEREAS, A great number of hospital-based physicians throughout the nation have declared their intention to bill separately for their professional services in keeping with this principle; therefore be it

Resolved, That, since separate billing by the physician for his professional services is a preferred ethical practice, it shall be deemed unethical for a physician to displace a hospital-based physician who is attempting to practice separate billing when said displacement is primarily designed to circumvent separate billing.

(Some time after the above was adopted the AMA Board of Trustees, upon advice from legal counsel, voted not to implement this action at the present time.)

Direct Billing

Direct billing has been recommended by the Board of Trustees and the Council on Medical Service as the billing method of choice under Title XVIII. Since there is wide latitude available to individual states in establishing administrative procedures under Title XIX programs, this House of Delegates urges each state association to work early and diligently, in its own state, to the end that any plan or enabling law developed by the states to qualify as a Title XIX program authorizes such a direct billing procedure, and that the Board of Trustees do all in its power to implement the intent of this resolution at a national level.

Doctrine of Individual Responsibility

The House of Delegates was presented a considerable report from the Council on Medical Services which includes the following excerpts.

At the outset the Council would like to present clearly its conviction that in order to preserve the great bulk of free-enterprise private practice of medicine it will be essential to cooperate closely with such kindred defenders of private medicine as the insurance industry and the Blue Shield organizations have proved to be. It has been the obligation of the Council on Medical Service to work closely with these organizations over the years, and the Council has found them sympathetic to the problems of physicians responsive to the requests of the American Medical Association in a multitude of areas, such as, claims form simplification, the development of coverage for senior citizens, and a united attack on over-insurance problems.

The Council on Medical Service points out that the representations of the doctrine of individual responsibility which have been brought to its attention stress that each physician should be free to exercise his own volition in his dealings with third parties. This would seem to leave each physician free to cooperate to the fullest degree with any "third party" which he felt merited his cooperation and support.

It is the impression of the Council that in subscribing to the doctrine of individual responsibility a physician does not in any way bind himself to refuse payments from third party paying agencies of which he approves or in any other way bind himself to a rigid system of financial dealings with patients.

Instead, the Council believes that the doctrine of individual responsibility is a clear and straightforward assertion of the basis of free-enterprise private medicine wherein the responsibility of the physician to provide medical service to the patient is matched by the responsibility of the patient to compensate the physician for that service. It declares to be ethical, whenever possible, direct financial dealings with any patient. It does not declare to be inappropriate or unethical the acceptance of compensation for service under other circumstances which the physician feels to be equitable to the patient and to himself.

Since the Council believes that the current interest in the doctrine of individual responsibility stems in large part from concern over the matter of "assignments" under PL 89-97, it hastens to add that, as a matter of American Medical Association policy, the Council on Medical Service recommends reaffirmation of the responsibility of individual physicians for determining how they will govern their professional practices under this law and that physicians should be made acutely aware of the manifest superiorities of direct billing. . . .

Government Hospital Utilization Committees (Resolution No. 24)

WHEREAS, Under recently enacted legislation utilization committees are required for participation by accredited hospitals; and

WHEREAS, Such utilization committees are being established in community voluntary and proprietary hospitals; and

WHEREAS, The accumulation of knowledge gathered by the utilization committees of the communities is of such great value in the medical care of the community that no hospital should be excluded from having utilization committees; and

WHEREAS, Inclusion of government hospitals into the utilization review program might open up bed space in areas where there is a tremendous shortage of beds as well as serving the purpose of over-all improvement of medical services; therefore be it

Resolved, That the American Medical Association bring to the attention of the appropriate federal agencies the responsibility of government hospitals for establishing active utilization review committees; and be it further

Resolved, That government hospitals at all levels in the United States and the Commonwealth of Puerto Rico (including Veterans Administration Hospitals but excepting military hospitals handling service personnel on active duty) be required to establish their utilization and review committees with participation of the staff member and representatives of local county medical societies; and that these reports be made available to reviewing federal agencies concerned with utilization efforts under PL 89-97 for comparison with non-profit hospital results.

Payment for Medical Reports

The attending physician should complete the appropriate "simplified" Health Insurance Council forms approved by the Council on Medical Service, without charge, as part of the physician's service to the patient to enable him to receive his benefits.

The Judicial Council is of the opinion that it is implicit in this statement of the House of Delegates that a charge for more complex forms could be made in conformity with local custom.

This suggestion is advisory. In all cases, the local medical society can be looked to for an authoritative opinion.

Principles of Medical Ethics

The Principles of Medical Ethics provide: "Drugs, remedies or appliances may be dispensed or supplied by the physician provided it is in the best interests of the patient." Your reference committee reaffirms the Judicial Council's interpretation that under this language it cannot be considered unethical for a physician to own or operate a pharmacy provided there is no exploitation of his patient. It also reaffirms the 1963 House of Delegates interpretation of the words "in the best interest of the patient," which reads as follows:

"It is the opinion of the Judicial Council that this language was adopted to permit both the practicing physician and the local medical societies to evaluate the many factual situations incident to prescribing and dispensing which are bound to arise in the practice of medicine. Under this language the doctor is permitted to exercise his own best judgment when caring for his patient. It is known that there will be situations when it is necessary or desirable for a physician to dispense or supply what he has prescribed. The Principles permit this to be done. On the other hand, this broad language provides a means by which a component medical society can inquire into the facts of a particular practice. The profession thus can act to prevent abuse of discretion and protect patients from exploitation. In essence this language means that a physician in the exercise of sound discretion may dispense 'in the best interest of his patient'; it does not authorize him to dispense solely for his convenience or for the purpose of supplementing his income."

The reference committee approves the goals sought by the Board's report, but disapproves its specific recommendations. It notes that mechanisms presently exist for processing charges of deviation from the foregoing ethic and urges that these mechanisms be made vitally active at local level. When charges of deviation develop, complaints should be made to the local society and vigorously processed by the appropriate committee of that society. If they are not resolved thereby, the complaints should then be carried to the state constituent association. The prudent physician will always seek the guidance of his local medical society in situations relating to ethical conduct.

Handbook of Official Actions

A Kansas delegate introduced a resolution which would require the official actions of the AMA to be published and compiled in loose leaf binder and a standard indexing system to be used for rapid identification.

While the above Resolution No. 28 was not adopted, the reference committee recommended, and the House of Delegates approved, that all official actions be brought up to date after each annual session and that such compilation include currently revised copies of the constitution and by-laws.

AMA-ERF (Resolution No. 65)

WHEREAS, The interest rate on loans to medical students, interns and residents is tied by agreement to the prime rate charged banks; and

WHEREAS, Recently this prime rate has been increased one half per cent resulting in a charge on loans of six per cent to medical students, interns and residents; and

WHEREAS, Federal loans to the same people is only four and one half per cent; and

WHEREAS, These young medical men would prefer to borrow through the AMA-ERF but find it difficult to pay two per cent more; therefore be it

Resolved, That the AMA-ERF explore the feasibility of subsidizing in some manner their loans so that the AMA-ERF funds may be more competitive than they have become in the last year; and be it further

Resolved, That the AMA-ERF report back to the Board of Trustees as soon as possible.

The House of Delegates reaffirmed its previous action to set the AMA dues for 1967 at \$45 per member.

LUCIEN R. PYLE, M.D.
JOHN C. MITCHELL, M.D.
Delegates from Kansas

CHANGE OF ADDRESS

Please notify the
Kansas Medical Society
of any changes in address

*Help keep the mailing list
up to date*

1966-67 Officers

Society and Specialty Groups

Kansas Medical Society

President.....James A. McClure, Topeka
Immediate Past President..George E. Burket, Jr., Kingman
President-elect.....George F. Gsell, Wichita
First Vice President.....John L. Morgan, Emporia
Second Vice President....Leland Speer, Kansas City
Secretary.....Francis T. Collins, Topeka
Treasurer.....John L. Lattimore, Topeka
AMA Delegate.....John C. Mitchell, Salina
AMA Delegate.....Lucien R. Pyle, Topeka
AMA Alternate.....William J. Reals, Wichita
AMA Alternate.....J. Warren Manley, Kansas City
Chairman, Editorial Board.Orville R. Clark, Topeka

COUNCILORS

District 1.....Virgil E. Brown, Sabetha
District 2.....James G. Lee, Jr., Kansas City
District 3.....Dan L. Berger, Shawnee Mission
District 4.....Wm. G. Rinehart, Pittsburg
District 5.....Alex Scott, Junction City
District 6.....Francis T. Collins, Topeka
District 7.....Richard F. Conard, Emporia
District 8.....Bruce G. Smith, Arkansas City
District 9.....S. C. McCrae, Salina
District 10.....Ralph R. Melton, Marion
District 11.....Ernest W. Crow, Wichita
District 12.....Frederick P. Wolff, Pratt
District 13.....A. M. Cherner, Hays
District 14.....Clair J. Cavanaugh, Great Bend
District 15.....Evan R. Williams, Dodge City
District 16.....J. J. Marchbanks, Oakley
District 17.....J. A. Barnard, Garden City
District 18.....R. W. Hughes, Lawrence

EENT Section

President—Joseph A. Budetti, Wichita
Vice President—B. John Ashley, Topeka
Secretary-Treasurer—Robert Polson, Great Bend
Delegate to KMS—Fred N. Bosilevac, Kansas City
Representative to NMFEC—Byron Ashley, Topeka

Kansas Association of Coroners

President—Paul Adams, Osage City
Vice President—L. P. Randles, Fort Scott
Secretary-Treasurer—J. L. Lattimore, Topeka

Kansas Blue Shield

President—Robert K. Purves, Wichita
Immediate Past President—E. Burke Scagnelli, Dodge City
First Vice President—James L. McGovern, Wellington
Second Vice President—Carl C. Gunter, Quinter
Secretary-Treasurer—C. M. Lessenden, Jr., Topeka

Kansas Anesthesiology Society

President—M. Robert Knapp, Wichita
Vice President—A. O. Tetzlaff, Kansas City
Secretary and Alternate Delegate, ASA—William Powers, Wichita
Treasurer—Glen Eaton, Salina
Delegate to ASA—Joyce Sumner, Hutchinson

Kansas Chapter, American College of Chest Physicians

President—In Sung Kwak, Norton
Vice President—William Nice, Topeka
Secretary—Benson Powell, Topeka

Kansas Chapter, American College of Physicians

Governor for Kansas—Sloan J. Wilson, Kansas City
Chairman, Arrangements—Sherman M. Steinzeig, Kansas City
Chairman, Program—Robert T. Manning, Kansas City
Advisory Committee—E. W. Crow, Wichita; W. H. Algie, Kansas City; Nathaniel Uhr, Topeka; J. L. Morgan, Emporia; C. W. Erickson, Pittsburg

Kansas Chapter, American College of Surgeons

President—William Reed, Kansas City
President-elect—W. C. Bartlett, Wichita
Secretary-Treasurer—John G. Shellito, Wichita
Chairman, Governor's Advisory Committee—Thomas P. Butcher, Emporia
Councilors—C. A. Isaac, Newton; Charles Joss, Topeka; L. W. Reynolds, Hays

Kansas Chapter, American Society of Internal Medicine

President—Newman V. Treger, Topeka
Secretary-Treasurer—Frederick P. Wolff, Pratt

Kansas Medical Assistants Society

President—Eula M. Hartner, Topeka
President-elect—Dorothy Gunn, Great Bend
First Vice President—Frieda Pierson, Oakley
Second Vice President—Gertrude Suenram, Wichita
Secretary—Marilyn Young, Topeka
Treasurer—Darlene Redmond

Kansas Medical Society, Golf, Skeet, Trap Association

President—R. A. Barker, Council Grove
Vice President—Charles Crockett, Kansas City
Vice President, Golf—Mr. Marshall Becker, Wichita
Vice President, Trap—George Gill, Sterling
Secretary-Treasurer—Eugene Siler, Hays

Kansas Orthopedic Club

President—G. Bernard Joyce, Topeka
Secretary-Treasurer—H. O. Marsh, Wichita

Kansas Pediatric Society

President—Vernon Branson, Lawrence
President-elect—Roy C. Knappenberger, Wichita
Secretary-Treasurer—A. C. Irby, Fort Scott

(Continued on page 483)

Physicians Serving Other Agencies

Listed in this section are the Society members who serve by election or appointment on governing boards or as medical advisors to official and voluntary state-wide health agencies.

Advisory Commission on Institutional Management

The twelve members of this commission are appointed by the governor, of which the following are Society members.

Jack A. Dunagin, Topeka; Karl Menninger, Topeka; Richard L. Merkel, Topeka; C. Arden Miller, Kansas City; R. H. Riedel, Topeka; W. Clarke Wescoe, Lawrence.

Blue Cross Board

Of the 36 members on the board, 12 are physicians nominated by the Council of the Kansas Medical Society.

Clair C. Conard, Dodge City; Guy W. Cramer, Parsons; Marvin R. Gunn, Salina; R. H. Hill, Meade; S. P. Hornung, Colby; H. P. Jones, Lawrence; K. L. Lohmeyer, Emporia; H. L. Low, Wichita; H. P. Palmer, Scott City; L. W. Patzkowsky, Kiowa; R. J. Taylor, Wichita; J. N. Winblad, Winfield.

Blue Shield Board of Directors

Serving on the board are 14 lay members, two of whom are appointed by the governor, and 18 physicians, each elected by participating physicians from his councilor district.

E. D. Yoder, Denton; F. W. Masters, Kansas City; R. F. Horseman, Shawnee Mission; H. L. Bogan, Baxter Springs; J. S. Hunter, Manhattan; Leslie Saylor, Topeka; L. F. McKee, Cottonwood Falls; J. G. Claypool, Howard; H. S. Dreher, Jr., Salina; R. M. Glover, Newton; W. H. Fritzemeier, Wichita; S. W. Zwiefel, Kingman; G. C. Hutchison, Hays; D. A. Kendall, Great Bend; E. R. Williams, Dodge City; A. W. Dahl, Colby; R. J. Maxfield, Garden City; A. C. Mitchell, Lawrence.

In addition, there are the officers elected by the Board of Directors, and listed with the specialty group officers on page 481.

Board of Basic Science Examiners

This five-member board is appointed by the governor and includes one pathologist.

Frank A. Mantz, Kansas City.

Council on Standards for Hospitals

There are ten members on this council. Five members are appointed by the Council of the Kansas Medical Society, and an equal number are appointed by the Kansas Hospital Association.

H. St. C. O'Donnell, Ellsworth; G. F. Gsell, Wichita; R. H. Hill, Meade; L. W. Patzkowsky, Kiowa; E. B. Struxness, Hutchinson.

Governor's Advisory Committee to the Board of Social Welfare on Uniform Medical Care Plan

This committee is composed of two members from each participating agency and all members are appointed by the governor.

T. P. Butcher, Emporia; L. R. Pyle, Topeka.

Governor's Committee on Employment of the Physically Handicapped

This is a large committee appointed by the governor. There are two members who represent the medical profession.

Dwight Lawson, Topeka; C. R. Rombold, Wichita.

Heart Disease, Cancer, Stroke Advisory Committee for Regional Programs

This is a 14-member committee appointed by the governor, of which the following are members of the Society:

C. Arden Miller, Kansas City (Chairman); F. F. Allbritten, Jr., Kansas City; M. H. Delp, Kansas City; C. E. Lewis, Kansas City; R. C. Polson, Great Bend; R. W. Weber, Salina.

Kansas Advisory Hospital Council

This council is appointed by the governor. There are nine members, two of whom are physicians.

William E. Grove, Newton; Charles H. Young, Atchison.

Kansas Advisory Laboratory Commission

Three of the members of this commission are appointed by the universities; two members are appointed by the governor.

Frank A. Mantz, Kansas City; William J. Reals, Wichita.

Kansas Hospital Facilities Information Service

One of the members on the board is appointed by the Council of the Kansas Medical Society.

William E. Grove, Newton.

Kansas State Board of Healing Arts

Five of the eleven members of the Board of Healing Arts are physicians. They are nominated by the Council of the Society, and final appointments are made by the governor.

F. J. Nash, Kansas City (Executive Secretary); J. E. Hill, Arkansas City; J. L. Lattimore, Topeka; H. St. C. O'Donnell, Ellsworth; D. Cramer Reed, Wichita.

Kansas State Board of Health

These appointments are made by the governor. In addition to these physicians, there are five other board members.

R. C. Polson, Great Bend; H. L. Bogan, Baxter Springs; G. E. Burket, Jr., Kingman; K. L. Graham, Leavenworth; T. F. Taylor, Phillipsburg.

Liaison With the Kansas Chapter of SAMA

This appointment is made by the Council of the Society.

Leland Speer, Kansas City.

Medical Advisory Committee on Radiation to the State Department of Health

The six members of this committee are appointed by the State Department of Health upon recommendations from the Kansas Medical Society.

D. R. Germann, Kansas City; Sloan J. Wilson, Kansas City; P. R. Schloerb, Kansas City; A. M. Cherner, Hays; R. C. Lawson, Topeka; T. J. Luellen, Wichita.

Physical Therapist Examining Committee

There are five members on the committee; the two

physicians are appointed by the Board of Healing Arts.

F. J. Nash, Kansas City; Donald L. Rose, Kansas City.

State Board of Examiners in Podiatry

Three members of this board are appointed by the governor and two physicians are appointed by the Board of Healing Arts.

F. J. Nash, Kansas City; D. Cramer Reed, Wichita.

Society and Specialty Officers

(Continued from page 481)

Kansas Psychiatric Society

President—Thomas F. Morrow, Wichita
President-elect—Alfred P. Bay, Topeka
Secretary—Charles C. Wellshear, Wichita
Treasurer—Donald C. Greaves, Kansas City

Kansas Radiological Society

President—Richard F. Conard, Emporia
Vice President—Edward J. Fitzgerald, Wichita
Secretary-Treasurer—Robert C. Lawson, Topeka
Delegate to KMS—Roger K. Wallace, Manhattan
Councilor, Kansas Chapter, American College of Radiology—Willis L. Beller, Topeka
Alternate Councilor—Edward J. Fitzgerald, Wichita

Kansas Society of Medical Technologists

President—Sister Mary Carmel Heffern, Fredonia
President-elect—Phylis Boyle, Kansas City
Secretary—Paula Quinley, Topeka
Treasurer—Lillian Zuercher, Newton

Kansas Society of Pathologists

President—Frank A. Mantz, Jr., Leawood
President-elect—Charles G. Hermann, Topeka
Vice President—James Good, Fort Scott
Secretary-Treasurer—C. T. Hinshaw, Jr., Hutchinson

Kaw Valley Heart Association

Chairman of Board—Antoni M. Diehl, Kansas City
President—Hon. Frank L. Hunn, Atchison
President-elect—Alex C. Mitchell, Lawrence
Vice President—Mrs. W. B. Crabtree, Jr., Highland; Mrs. R. G. Henry, Oskaloosa; Mr. T. B. Robinson, Mission Hills
Secretary—Mr. Robert S. Charlton, Lawrence
Treasurer—Mr. W. C. Hartley, Mission Hills

Woman's Auxiliary to the Kansas Medical Society

President—Mrs. Lyle G. Glenn, Protection
President-elect—Mrs. Ernest G. Neighbor, Shawnee Mission
Vice Presidents—Mrs. J. G. Claypool, Howard; Mrs. Warren Meyer, Wichita; Mrs. O. L. Hanson, Topeka; Mrs. E. D. Hinshaw, Arkansas City
Recording Secretary—Mrs. H. W. Hiesterman, Quinter
Corresponding Secretary—Mrs. Ronald McCoy, Coldwater
Treasurer—Mrs. James G. Lee, Jr., Kansas City

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR,

Just to show you what we are up against, President Johnson has said, "Medicare need not just be for people over 65!" The National Association of Social Workers has urged Congress to extend medical service under Social Security to the total population!

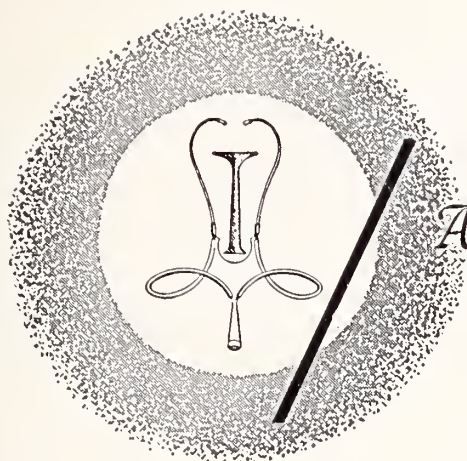
Amendments to the bill which are now in Congress would extend the coverage to anyone receiving Social Security benefits (widows, dependent children, and those disabled), would cover fees of podiatrists and chiropractors, and cover the cost of drugs! Another bill would place anesthetists, pathologists, and radiologists under the hospital plan!

You may say this is inevitable. I must disagree. If you remember, the Medicare Bill would have been defeated with the change of only 23 votes! You also will remember that 58 new, freshmen congressmen, who rode in on the President's coat tails, have voted exactly as he wished. If these can be replaced by men believing as we do, this extension of federal medical care can be halted. Traditionally, the party in power loses some of its majority in non-presidential elections. This is our chance! It will take interest, work, and money. You need to be in KaMPAC.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations

SEPTEMBER

Sept. 18 Seminar for Family physicians, Neurological Hospital, Kansas City, Missouri. The topic, *Cerebral Vascular Disease*, will be discussed by Joe R. Brown, M.D., Section of Neurology, Mayo Clinic.

Sept. 29 Kansas Thoracic Society, Ramada Inn, Topeka. John S. Chapman, M.D., professor of internal medicine and assistant dean, Texas Southwestern Medical College will be the guest consultant at the noon medical session. Other physicians participating in the program are: Karl Pfuetze, Chicago; F. C. Beelman, Topeka; James Brown, Chanute; Florence MacInnis, Kansas City; William E. Ruth and L. A. Hollinger, K. U. Medical Center. For reservations contact the Thoracic Society, 1134 Topeka Avenue, Topeka.

OCTOBER

Oct. 1-2 International Conference on Pathology of Renal Diseases, New York Medical College. Write: New York Medical College, 5th Avenue at 106 St., New York, New York 10029.

Oct. 3-5 Kansas City Southwest Clinical Society, 44th annual fall clinical conference, Hotel Muehlebach, Kansas City, Missouri.

Oct. 10-14 American College of Surgeons, 52nd annual clinical congress, San Francisco. For advance information contact Communications Dept., American College of Surgeons, 55 East Erie Street, Chicago 60611.

Oct. 17-20 Interstate Postgraduate Medical Association, 51st annual scientific assembly, Sheraton-Park Hotel, Washington, D. C. For information write: Interstate Post-

graduate Medical Association, Box 1109, Madison, Wisconsin 53701.

Oct. 20-22 Symposium on Industrial Medicine: *The Doctor's Role in Occupational Health*, St. Petersburg, Florida. For information write: Industrial Medicine, Mound Park Hospital Foundation, Inc., St. Petersburg 33701.

Oct. 22-27 American Academy of Pediatrics, 35th annual meeting, Palmer House Hotel, Chicago. Write: American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

POSTGRADUATE COURSES

University of Colorado:

Oct. 3-7 *The Hospital Medical Staff Conferences* (Estes Park)

Oct. 27-29 *Population Dynamics, Genetics Counseling and Birth Control*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

University of Kansas:

Oct. 7-8 *Radiologic Technology*

Oct. 20-21 *School Health: Health Education and Health and Illness Behavior*

Oct. 25-26 *Medicine and Religion*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Blvd. at 39th St., Kansas City, Kansas 66103.

Hahnemann Medical College and Hospital:
(Department of Medicine)

Oct. 26-28 *Theory and Application of Gas Chromatography in Industry and Medicine*

For further information write the Department of
(Continued on page 487)



FERMENT IN MEDICINE: A Study of the Essence of Medical Practice and Its New Dilemmas, by Richard M. Magraw. W. B. Saunders Company, Philadelphia, 1966. 272 pages. \$6.50.

The book is an attempt to analyze the various forces that are in interplay in the health field. Appropriately the author states that the need for understanding of the nature of medical practice is not limited to doctors. The health field, at the present time, employs over two million persons in the United States. It is next to agriculture and construction as the largest single category of employment in the country. The 225,000 physicians, engaged in the fundamental task of medicine, make up the core of this group of over two million who care for the patients. Insofar as possible, all citizens should be knowledgeable in matters of medical care. The need for public re-appraisal of the nature of medical care and practice, as well as the changing patterns, provide the reasons for the author's efforts. The nature of medical practice is dissected in great detail, particularly from the point of view of a psychiatrist working in the department of medicine of a large medical school. He tries to find and delineate the essentials of medical care, namely, the care of an individual patient by an individual doctor—in order to permit dispassionate study or analysis. The question is asked whether free choice of physician is really necessary or helpful in medical care. It is further asked "Is the doctor-patient relationship significant in enhancing individual well-being, or is it just a kind of medical sacred cow?"

In the first section of the book, the study is addressed to: the nature of illness, or the concepts of disease; the agreement between the individual patient and doctor; the role of the doctor and patient as assigned by society, and finally the relationship between patient and doctor.

In the second section of the book, movement is to

consider the more complex elements in medical care. The new major institutions entering the scene are described; thus study is addressed to: (1) the hospital—its evolution and impact in medicine; (2) relation between physician and hospital; (3) the development and consequences of medical research; (4) specialization and sub-specialization among medical practitioners; (5) the growing family and the related health profession; (6) health insurance and the effect of third parties in medicine; (7) the emergence and probable effect of automation in medicine; and finally (8) the discussion of the evolving of new medical care and practice. The author repeats that medicine is "a social science," and that the role the doctor will play is defined by society. The reader is exhorted to assist society in wise negotiation of social problems, and the author hopes to have clarified many of the cross-currents of change which are not now buffeting the physician.

Dr. Magraw further hopes that medical sociologists who read the book will carry away a renewed sensitivity to the paradoxical elements of the physician's role, and a tolerance for and patience with the conservatism of the medical practitioner. The non-professional reader is to derive an understanding of the nature of illness as distinct from disease, as well as a new awareness of the humanistic core of medicine, and knowledge that revolutionary changes are occurring in this part of society.

The author is to be complimented for the *detailed* analysis of the segment of the social revolution that is affecting every fundamental aspect of life in these United States. The book is thought-provoking for medical students and practitioners, whether he is a generalist, or a specialist, or a teacher. Hospital administrators, sociologists, and intelligent members of the public will find this a most useful critique. It is a small book of 266 pages—well-printed.—N.V.T.

CURRENT CONCEPTS IN MEDICAL PRACTICE, edited by John E. Mullins, C. V. Mosby Company, St. Louis, 1965. 435 pages. \$10.75.

The authors of this book have presented a concise and highly practical review of modern concepts in a number of fields which would be of interest to the busy internist or general practitioner. It was noted that only the common problems encountered in medical practice are considered, which are broken into ten general divisions which prove to be neither exhaustive nor exhausting. Presentation of statistical or experimental figures is kept at a minimum and appears only occasionally when the authors have attempted to substantiate conclusions or recommendations. In preface to each division is found a brief review of basic physiological and biochemical considerations of the organ system to be discussed, which is sufficiently abbreviated so as to be readily understandable. This is particularly well done in the sections on diseases of the liver and of the cardiovascular system. This highly stimulating book is to be recommended for the physician's bedtime reading.—*R.D.N.*

A SYNOPSIS OF CONTEMPORARY PSYCHIATRY, by George A. Ulett and D. Wells Goodrich, 3rd Edition. C. V. Mosby Company, St. Louis, 1965. 299 pages. \$6.75.

This little book should be of considerable help to house officers and of interest to nurses, social workers and others having a general interest in psychiatry. It is, as the name implies, truly a synopsis of psychiatry, with sections on the history of psychiatry, history taking and diagnostic procedures, clinical syndromes and therapeutic measures. While each section is necessarily brief, it is accompanied by a good bibliography. The indexing makes it rather easy to find desired facts, syndromes, drug dosages, etc.—*J.A.D.*

Announcements

(Continued from page 485)

Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

University of Missouri:

Sep. 16-17 *Neurological Problems in Office Practice*

Oct. 14-15 *Soft Tissue Trauma*

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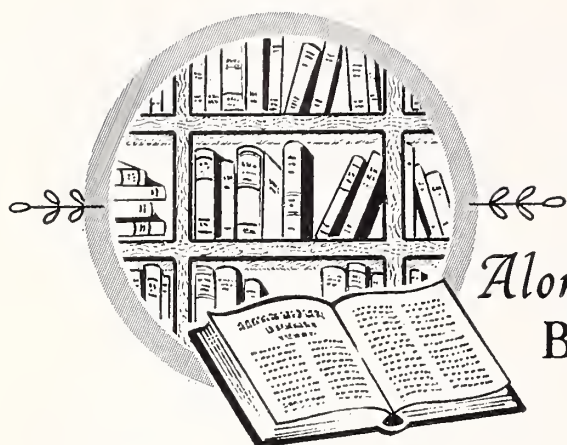
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MORTON E. BROWNELL, M.D.

Dr. Morton E. Brownell, Sr., 73, died on July 31, 1966, at his home in Wichita.

Dr. Brownell was born at Oneonta, New York, on February 1, 1893. He received his degree in medicine from the University of Michigan School of Medicine in 1916. After serving in the Medical Corps during World War I, he was a medical missionary in Syria for several years. In 1927 he started his practice in Wichita.

Survivors include four sons and two daughters.

JAMES A. BUTIN, M.D.

Dr. James A. Butin, Chanute physician for 40 years, died at Neosho Memorial Hospital on July 27, 1966. He was 73 years old.

Dr. Butin was born March 23, 1893, at Fredonia. He received his medical degree from Rush Medical College, Chicago, in 1920. In 1922 he entered general practice in Fredonia, moving to Chanute in 1926. He was active in church, civic, service and professional organizations and served on the Chanute Board of Education for 19 years.

His wife, two sons and a daughter survive.

DON C. WAKEMAN, M.D.

Dr. Don C. Wakeman, 60, Topeka, died in a hospital there on July 22, 1966.

Dr. Wakeman was born August 13, 1905, at Scranton. He began his medical practice in Topeka in 1935, after graduation from the University of Kansas School of Medicine in 1933, and completion of his internship and residency at St. Agnes Hospital, Baltimore, Maryland. A veteran of World War II, he had been awarded the Croix de Guerre medal by the French government for his service as a lieutenant colonel in the Medical Corps in France.

Dr. Wakeman is survived by his wife and one son.

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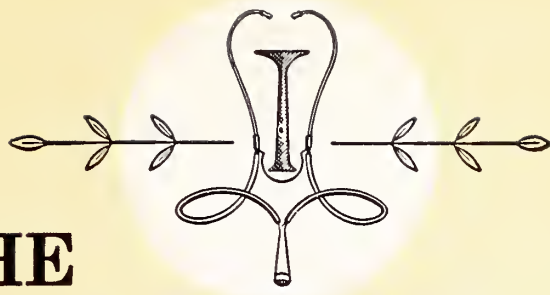
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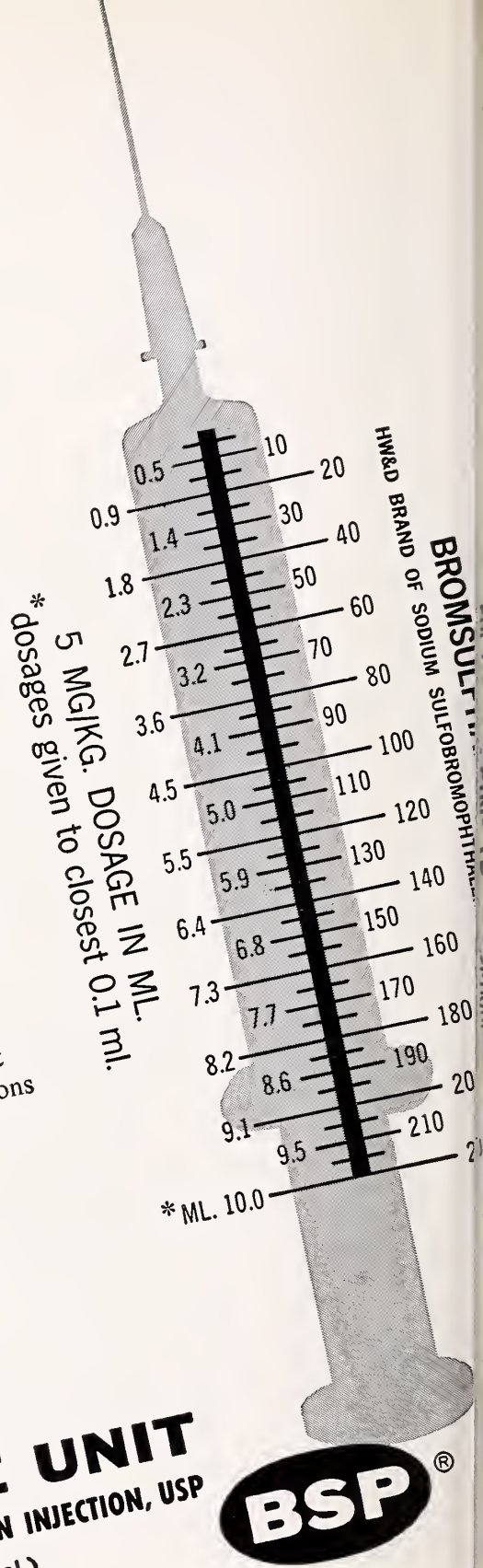
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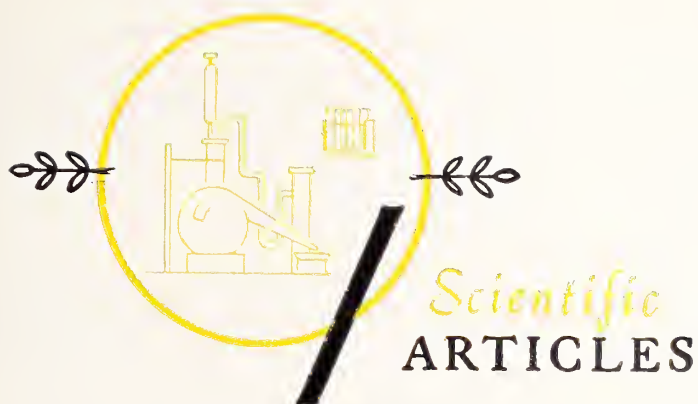
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An Unusual Finding—

Congenital Absence of the Upper Pole of the Lobe of Thyroid Gland and Radioactive Scanning

ADOLPH N. PELLEGRINI, M.D., F.A.C.S.,

LOUIS J. CENNI, M.D., F.A.C.S., and VICENTE H. H. PO, M.D., Topeka*

AMONG THE RECENT developments in diagnosis of thyroid pathology, radioisotope scanning with I^{131} has acquired prominent importance. This is particularly true in the case of "cold" adenomatous nodules of the thyroid, demonstrated as areas of negative I^{131} uptake in the scintigram. A high percentage of these nodules is found to be malignant. However, such an area of negative I^{131} uptake within the outline of the thyroid is not always due to a "cold nodule" or other pathological condition of the gland. The following case is demonstrative of such an instance.

Case Presentation

A 51-year-old male entered the Topeka, Kansas, VA Hospital on August 26, 1964 because of increasing nervousness, and progressive protuberance of both eyes, with periorbital edema. Protrusion of the eyes had been present for several years. Chronic exfoliative dermatitis since World War II had been treated with Medrol 4 mg. three times a day since 1957. Cervical lymphadenitis had occurred on one occasion, apparently secondary to the infectious der-

A rare case of congenital absence of the upper pole of the left lobe of the thyroid is reported and discussed. Review of the embryogenic development of the thyroid, and considerations on radioactive scanning of the gland, are forwarded, with related problems of surgical management. An area of negative I^{131} uptake in the radioscan can be caused not only by "cold" nodules, cysts, hematomas, or spots of chronic thyroiditis with non-functioning tissue, but also by the rare condition of failure of embryogenic development of the lateral anlage of the thyroid. Paratracheal "ultimobronchial" cysts should be ruled out in these cases.

matitis. During a previous hospitalization in 1948, he had been found to be hypothyroid (BMR minus 28), and thyroid extract was given with prompt return to normal thyroid function. In 1955 he was hospitalized for mild undifferentiated schizophrenic reaction, pres-

* From the Surgical Service, Veterans Administration Hospital, Topeka.

ently controlled. An appendectomy had been done in 1944.

Physical examination revealed a lean white male, 51 years old, 5 ft. 8½ in. tall, weighing 126 pounds. He was oriented and cooperative, and appeared his age. There was no sign of active dermatitis. The blood pressure was 130/80, the pulse regular at 80/min., and respirations 20/min. The temperature was 97.4° F. The head was shaped normally. The eyes were markedly protuberant, the conjunctivae congested, the eyelids and periorbital areas moderately edematous. Von Graefe's lid lag sign was positive. The pupils were equal, reacting normally to light and in accommodation. There were no visual deficits. Cranial nerves were not involved. Nasopharyngeal examination was negative. The neck was supple, without palpable enlargement of the thyroid, lymph nodes or masses. The carotid pulses were normal, and equal. The respiratory and cardiovascular systems were unremarkable. The abdomen was soft and free of masses. The liver and spleen were normal. The genitalia were normal. Examination of the rectum and prostate was negative. There was no tremor of the hands or fingers.

Laboratory data indicated normal hemogram, urinalysis, blood sugar and blood urea nitrogen. Serology was negative. Liver tests were normal. Cholesterol was 270 mg. per cent with 68 per cent esterified. The serum protein bound iodine on admission was 5.25 micrograms per cent. The Achilles tendon photomogram time was 320 milliseconds (normal range: 260-380 milliseconds). The electrocardiogram was normal. Respiratory function screening tests were normal. Chest x-rays failed to reveal any evidence of substernal goiter. The radioactive scintigram (I^{131}) was reported as abnormal, because of one area of negative uptake in the region of the left upper lobe of the thyroid. Malignancy could not be ruled out (Figure 1). The I^{131} uptake curve was in the euthyroid range (Figure 2).

Surgical exploration of the thyroid was decided upon due to the scintigraphic findings. Orally administered iodine was begun. The Medrol was continued. The surgery was performed on October 12, 1964, under general anesthesia, and intravenous hydrocortisone. The thyroid gland was exposed through a low anterior collar incision. Findings were consistent with the complete absence of the upper pole of the left lobe of the thyroid. This was in the same area of the negative I^{131} uptake on the scintigram. The rest of the gland was normal in size, appearance and consistency. The left sternomastoid muscle was retracted, and the parajugular chain of lymph nodes, as well as the paratracheal regions, were explored. No enlarged lymph nodes or other solid or cystic

masses could be found. A wedge biopsy of the thyroid gland was taken from the left lobe, and the incision closed. The postoperative course was uneventful. The pathological report on the thyroid biopsy was normal thyroid tissue. The patient was discharged on October 23, 1964. Medrol 2 mg. twice daily was to be continued.

Embryology

The singular features of this case, with its scintigraphic and surgical findings induced us to review the earlier studies on the embryology of the thyroid. We

Patient

Date of Scan 9-15-64

RIGHT

LEFT



Figure 1. Abnormal scanogram with absence of uptake in the region of the left upper pole of thyroid.

could not find any statistical incidence of this congenital defect of the thyroid. Subsequent review of the literature on radioactive scanning of the thyroid gland was then done with the intent to determine whether a case of this type had ever been reported, and we were unable to find any instance of congenital defects of the thyroid revealed by negative scanogram.

His,⁹ in 1885 formulated the theory that the thyroid gland is formed by a medial anlage from the pharyngeal floor, and a pair of lateral anlages arising from the caudal part of the embryonic pharynx, the so-called "ultimo-branchial bodies." The transforma-

THYROID STUDY GRAPH 9-14-64
Percent of Dose Concentrated in Thyroid Gland
and
Percent of Dose Excreted in Urine

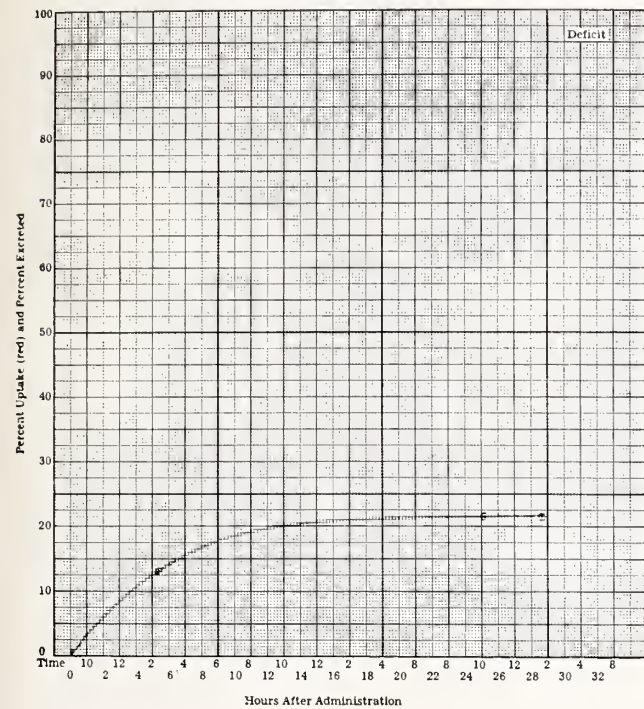


Figure 2. Uptake curve in euthyroid range.

tion of these paired lateral thyroid anlagen (the "ultimo-branchial bodies") into thyroid tissue has since been denied (Grosser,⁸ Kingsbury¹¹) or confirmed (Franz,⁶ Norris,¹⁴ Rogers,¹⁵ Weller¹⁸). The most recent conclusions were that the lateral anlagen did actually take part in the formation of thyroid tissue, however in smaller fashion than previously estimated. Weller¹⁸ (1933) believed that about one third of the thyroid is formed by the lateral anlagen, but Rogers¹⁵ and Norris¹⁴ reduced this contribution to one sixth, or one eighth of the total thyroid parenchyma. Werner¹⁹ stated that the descent of the central thyroid anlage, from the foramen cecum and along the midline, is completed at about the seventh week of the embryonic life. At the same time the lateral anlagen develop from the caudal branchial pouches, and join the central anlage about the tenth week. The central anlage seems to exert an induction-like influence upon the less potent lateral anlagen, causing them to join, and then to transform into thyroid tissue. Sometimes the lateral anlagen do not join the medial portion of the gland, nor form thyroid tissue, but remain as atypical cysts, of various size, near the trachea. Neoplasms may arise from such ultimo-branchial cysts. These cysts, or tumors, whenever found, have to be differentiated from metastatic nodes of carcinoma of the thyroid gland, which are more common. King¹⁰ and Pemberton (1942) de-

fined the already old and historical issue of the "lateral aberrant thyroids" and related pathology (Cattell,³ Crile,⁴ Lahey¹²).

Discussion

The indications and value of the radioactive iodine scanning of the thyroid are now well established. An area of negative or reduced I^{131} uptake in the thyroid scintigram is suggestive of a "cold nodule," frequently malignant, or of areas of chronic thyroiditis, non-functioning cysts, or circumscribed hematomas within the thyroid parenchyma. Boehme² *et al.*, reporting their series of scintigraphic findings classified thyroid nodules as "hot," "warm," "cool" and "cold" to indicate the amount of function and I^{131} uptake of these lesions. Even the presence of diffuse or localized hyperthyroidism does not exclude the possibility of cancer, which was present in up to 1.2 per cent of the cases of "hot" nodules reported by Bartels,¹ Bell and Goekas.

Gibbs⁷ and Meadows¹³ found carcinoma in 58 per cent and 24 per cent respectively of "cold" nodules. Other authors (Taylor,¹⁷ Dische,⁵ etc.) confirm these findings. Shimaoka¹⁶ *et al.* point out the importance of the actual size of the "cold" nodules, lesions more than 1.5 cm. in diameter being more frequently malignant.

Surgery in our patient was performed because of the possibility of a cancer, as suggested by a defect in the scintigram. We found congenital absence of the left upper pole of the thyroid. Congenital absence of a part of the thyroid gland should be included in the list of conditions giving areas of negative I^{131} uptake, along with "cold" adenomas, cysts, hematomas, and localized chronic thyroiditis. When, at surgery, a congenital absence of the lateral anlage of the thyroid is found, the homolateral paratracheal area should be explored, to rule out the presence of atypical residual "ultimo-branchial" cysts, with related possible malignant changes. Reversibly, in the case of an atypical cyst in the paratracheal area, exploration or radioscanning of the homolateral lobe of the thyroid would serve to forestall misinterpretation of any future thyroid scintigram.

Acknowledgement

The authors wish to thank Dr. Sam Zelman for his assistance in the preparation of this paper.

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Multiple Cancers

*Development of a Second Primary Pulmonary Carcinoma 13 Years After Pneumonectomy**

ARNALDO G. CARVALHO, M.D.,[†] and
DOUGLAS T. FERRARO, M.D.,[‡] *Wadsworth*

A report of a patient who developed a carcinoma in his remaining lung after previous pneumonectomy for carcinoma. A discussion of second primary tumor versus metastasis.

THE DEVELOPMENT of two separate, primary carcinomas of the lungs in one patient is unusual. The less the time interval between the two diagnoses, the less certainty there is the two malignancies are separate primaries. In our review of the literature, the longest time interval between the diagnosis of each malignancy was 11 years.¹ Langston *et al.* reviewed all cases of multiple primary carcinomas of the lung reported from 1924 to 1961, and found a total of 34 cases, only seven of which had been diagnosed during life (in addition to their own cases). Shields *et al.* found 53 reports of double primary lung tumors in the literature, and added four cases of their own. In this report, 13 years and four months elapsed between diagnoses of the two malignancies.

Case Report

C.E., a 57-year-old male, was admitted to the Wadsworth Veterans Administration Hospital on February 21, 1952, complaining of weakness and chest pain. Cough had been present for about two years, and some blood had been raised during that time. He gave a history of smoking cigarettes (one package per day). Chest x-ray showed a homogeneous density adjacent to the left cardiac border. This cleared and he was discharged with a diagnosis of pneumonitis. On May 13, 1952, the patient was re-admitted because of persistence of chest pain, cough, fever and 30 pounds weight loss. Chest x-ray (*Figure 1*) showed atelectasis of the left upper lobe. Bronchoscopy revealed a tumor protruding into the lumen of the main stem bronchus, in the region of the left upper lobe bronchial orifice. Biopsy showed this to be a

squamous-cell carcinoma. On June 19, 1952, a left pneumonectomy was performed. It was thought that no residual tumor tissue had been left. The specimen showed a large infiltrating tumor in the left main stem bronchus, and microscopic examination confirmed the diagnosis of squamous-cell carcinoma (*Figure 2*). One hilar lymph node revealed no tumor.

Follow-up chest x-rays were done at least every six months, and were considered unremarkable. He was an in-patient again in October, 1961, because of an acute myocardial infarction. On that occasion, he stated that he had stopped smoking in February, 1961.

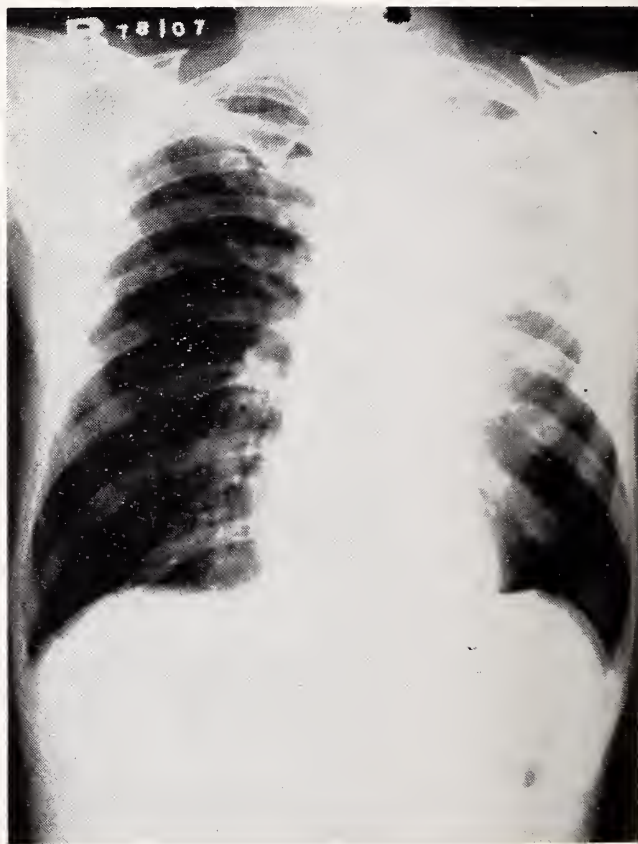


Figure 1. Note ground-glass opacity in upper two-thirds of left lung, with suggestion of a mass in the left hilar area.

* Wadsworth Veterans Administration Hospital.

[†] Department of Medicine.

[‡] Acting Chief, Laboratory Service.

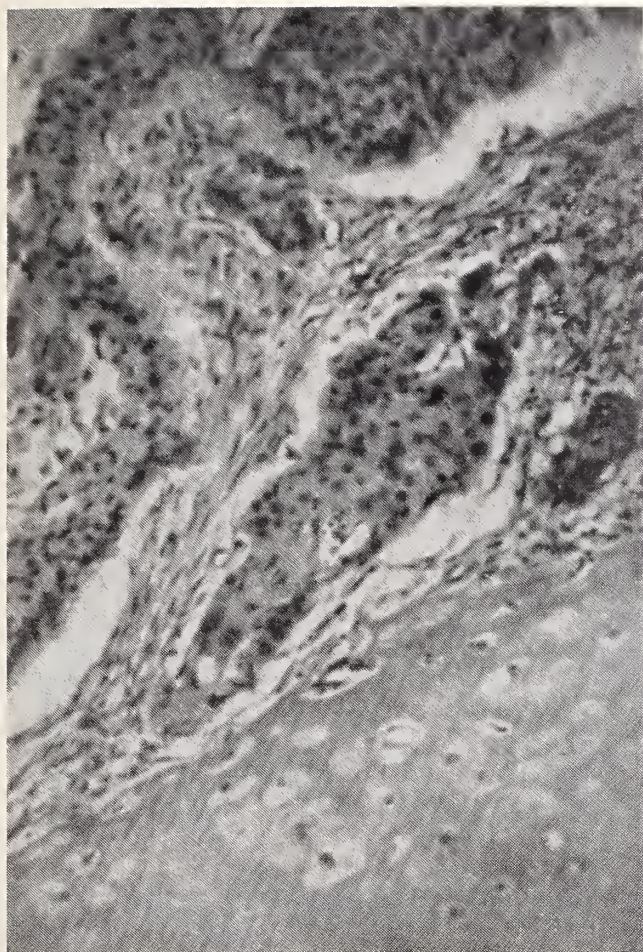


Figure 2. Microphotograph of left upper lobe bronchogenic carcinoma, 100X.

On August 30, 1965, he was re-admitted because of dyspnea, edema of the lower extremities, and subjective feeling of irregular cardiac action, for about one month. His most recent chest x-ray was dated June 10, 1965, and considered unremarkable. He denied having smoked for the past two or three years, but admitted one package per day prior to that. Cough had been present for two weeks, and blood was noted on one occasion. The cervical veins were engorged, the apex almost to the anterior axillary line; P2 was louder than A2. There was bilateral pitting edema of the legs. Chest x-ray showed exaggeration of vascular markings. The initial impression was congestive heart failure, perhaps precipitated by pneumonitis. Three sputum specimens were negative for malignant cells. The patient ran intermittent temperature, up to 101° F. Dyspnea, anorexia, weakness and nausea characterized his course. Mental confusion and lethargy ensued. Repeat chest x-ray (Figure 3) showed soft tissue infiltration in the right hilar region, highly suspicious of neoplasm (13 years and four months after diagnosis of the first malignancy). Electrolytes on September 21 were:

CO₂—34 mEq/L, Cl—53 mEq/L, Na—101 mEq/L, and K—3.3 mEq/L. He expired on September 29, 1965.

At autopsy, there was found a six cm. diameter squamous-cell carcinoma (Figure 4), involving the segmental bronchus to the apical segment of the right upper lobe. One peri-bronchial lymph node showed beginning or minimal invasion. A careful search of other organs, including the bone marrow, failed to show evidence of metastatic carcinoma. Of particular importance, there was no evidence of carcinoma in the stump of the left main bronchus or any of the multiple mediastinal lymph nodes serially sectioned and reviewed.

Discussion

There is good evidence to support the multicentric origin of carcinoma of the lung.⁴⁻⁸ This would not be surprising, considering that the whole tracheo-bronchial tree is uniformly exposed to the action of irritants; that similar cases are not reported more often might be explained by the short survival time associated with bronchogenic carcinoma, which might not allow enough time for appearance of another tumor. That this might well be the case is suggested by Watson. He found that a second primary tumor developed in four of 56 patients with carcinoma of the lung who survived ten years or longer (total series

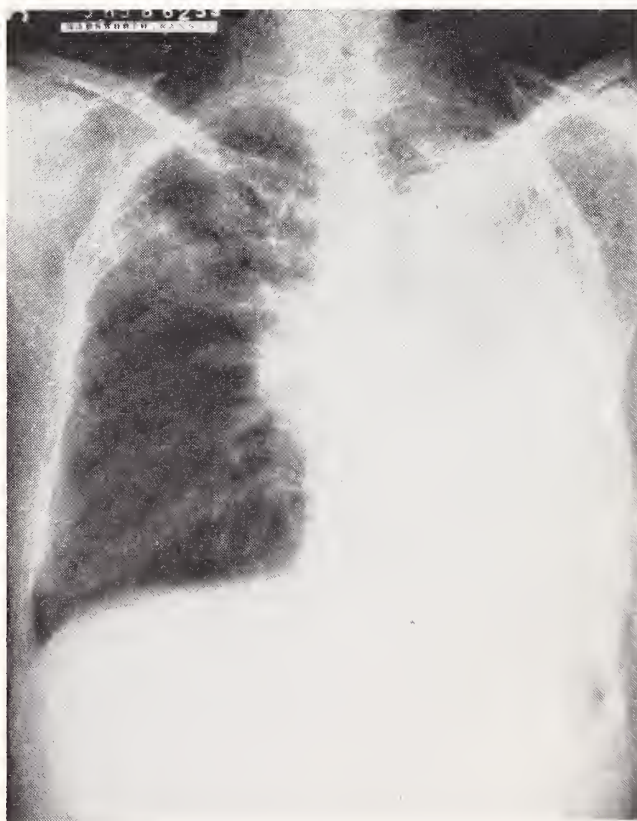


Figure 3. Note soft-tissue infiltration in the right hilar region.

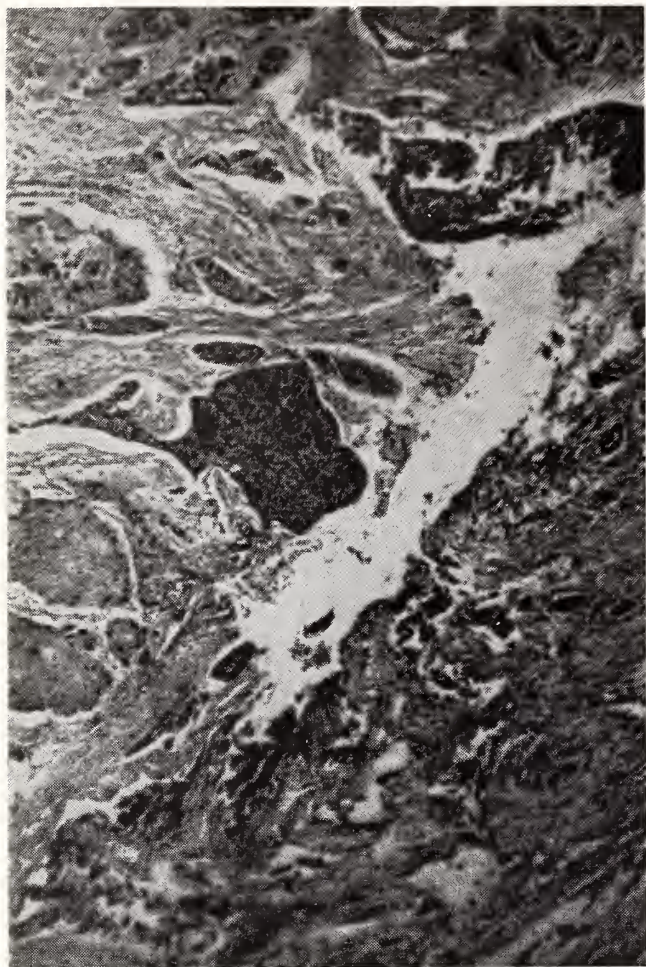


Figure 4. Micrograph of right upper lobe bronchogenic carcinoma, 35X.

of 2,540 cases). Oschner mentions two patients who developed carcinoma in the opposite lung, after five years' survival—the only two who did not discontinue smoking. Goorwitch reviewed a total of 124 cases of primary carcinoma of the lung and larynx, all having given a history of smoking. Our patient, too, did not stop smoking, at least until two or three years before appearance of the second tumor.

The question might always be raised whether the second tumor is a metastasis of the first. Two of Warren and Gates' criteria are obviously satisfied in our case (1) each must present definite picture of malignancy; (2) each must be distinct. The third one (possibility of one being a metastasis of the other must be excluded) is difficult to prove beyond any doubt. However, the long time interval, absence of metastasis elsewhere, absence of tumor in the stump of the left main stem bronchus, associated with the well-known rarity of solitary metastasis from squamous-cell carcinoma to the contralateral lung, constitute at least strongly suggestive evidence of the second tumor being a second primary.

It would be interesting to speculate that we might

be faced with this problem more often in the future, if early diagnosis and better therapeutic techniques improve survival in bronchogenic carcinoma. It also illustrates the point that appearance of a mass in the chest of a patient who had previous diagnosis of carcinoma of the lung is not necessarily metastatic.

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ADOPTION DOES NOT INCREASE the chance that conception will occur in a previously infertile couple, report Drs. William C. Weir and David R. Weir of Cleveland. This conclusion is based on data from a long-term study of 438 couples, 197 of whom adopted and 241 did not. The conception rate was slightly higher for the nonadopting group: 44 babies (18.2 per cent) vs. 32 (16.2 per cent) for the adopting group. Time intervals from onset of infertility to conception also were slightly better for the nonadopting group. The investigators emphasize that time intervals should have been shorter and conception rates higher for the adopting group if adoption were important in promoting conception. All patients were followed for at least five years, some for as long as 15 years.—*Fertility and Sterility*, March-April, pp. 283-288.



An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., *Kansas City, Kansas*

(Continued from September)

In 1924, we moved to the new site (*Figure 32*). The main, or administration building, was complete as was the power plant. It had already become evident that there was no provision for Negro patients or for an outpatient department. To remedy this defect, a temporary structure of wood and celotex board was constructed to the north of the main hospital building. One wing of this building was the outpatient department, the other housed the Negro patients. This flimsy, make-shift, fire trap was erected with the idea that it was only a temporary expedient, to be removed in two years—when the legislature met again to present us with a permanent building to replace it. It was torn down some 25 years later!

Dr. Haden and I had been promised a research laboratory, so, after looking over the site, Dr. Sudler gave us the second floor of the power plant. Laboratory tables, incubators, glass ware, apparatus of various types were installed, and we were quite happy in our new surroundings. True, this laboratory left some things to be desired. It was over the furnaces, which made it a rather warm spot when the hot summer of Kansas had set in, and its proximity to the coal bins below made it necessary every morning to wipe off the accumulated layer of coal dust on the tables. But it was a great improvement over our

previous quarters, and here Russell Haden began in earnest his researches on the blood, which later made him one of the best known hematologists in the country. He was also much interested in focal infections at this time and carried out important investigations on this subject. Later, he collaborated with Dr. Orr in their well-known studies on the importance of maintaining an adequate sodium chloride blood level in disease. This was a pioneer study in a field whose importance is now universally recognized—electrolyte balance.

The administration building was designed by the architects, as the name implied, for administrative purposes rather than for the care of patients. This made many adjustments necessary. The second floor had been designed for a library, but the reading room of the architects' plans was turned into a large ward for male patients. Similarly, the other rooms on this floor were utilized as small wards for patients. The third floor, which was designed for intern quarters, was transformed into single rooms for private patients. I recall that, when I had criticized in the architects' plans the rooms' narrow doors, which did not permit a patient's cart to be wheeled into the room, I was told that this was only a temporary inconvenience as the interns would take over the floor as soon as the new patients' pavilion was built—in about two years. Actually the interns moved in 30 years later. How hopes can lead to false predictions!

The new outpatient building, although very flimsy and little more than a pasteboard structure, was new,

This is the sixth of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.



Figure 32. New hospital 1924

freshly painted, and attractive. Under the guidance of Dr. Edward Hashinger (*Figure 33*), the outpatient department grew by leaps and bounds. Ed Hashinger, an old student of mine, who had learned the elements of pathology when I was professor of that branch, devoted most of his time in those days to building up a creditable department where students were taught the rudiments of medicine, surgery, and allied branches. His great success was evident to us all. I always felt he was my right bower in the department, one of the props upon which I leaned heavily and who never bent under the weight. He was not only the director of the dispensary, but often served as information clerk, filing clerk, record clerk, social service chief, and, on one occasion, as a volun-

teer fireman when a fire broke out on the second floor.

Hashinger was assisted by a group of enthusiastic, energetic and hardworking associates, whose devoted work in the outpatient department, as in many institutions, is passed over in silence while, in reality, it is the foundation-stone of a successful teaching edifice. It is hard to imagine our Medical School without the labors of Fred Rumsey, Harvey Boughnou, W. A. and John Myers, E. E. Pickens, Michael Bernreiter, Sam Snider, Lawrence Wood, Jim Elliott, Harry Jones, Fred Campbell, Jess Bell, Oliver Gilliland, Lee Hoffman, Joe Cowherd, John Aull, Herbert Vanorden, Robert Irland, Joe Welker, Roy Mills, and many, many others. The Medical School can never adequately discharge its debt to these men.

There was a classroom on the second floor of the dispensary, where the junior clinics were held. As the classes grew in size, the room became too small, and I can remember quite vividly seeing the overflow sitting in chairs in the hall, looking towards the door, their ears strained to hear the professor's words of wisdom as they floated through the open door.

The outpatient clinic continued to grow, and a record clerk was installed. In the old hospital, the record clerk was also my secretary, spending part of the time taking dictation and the rest of the time in the outpatient department. Life at the new site was really exciting.

There were many other exciting extracurricular activities, among them the regular Saturday noon payroll robberies. Hardly a Saturday passed without one or more such affairs. Two such occurrences involved the hospital.

One of these affairs took place on the old campus. Early one Saturday morning, two individuals parked a car on Francis Street, not far from the laboratory. A favorite stratagem of the bandits was to park a



Figure 33. Dr. Edward H. Hashinger

car in some outlying district and then, after the hold-up, drive to this spot, transfer the payroll to this second car, and drive off in it—another make of car, another set of license plates to confound their pursuers, who had seen only the first car. We were very suspicious that the parked car was a "get-away" car and notified the police. In a short time, several armed police arrived and deployed among the bushes, their fingers undoubtedly itching to pull the triggers and send some lead into the robbers if they appeared. Our suspicions proved well grounded. Shortly before noon, the two strangers appeared in a car, climbed out, and entered the "get-away" car. They carried a large sack, probably a payroll they had taken. The police called "halt," the men answered by firing at the police, who returned the fire. The robbers drove off in a hail of bullets and sped down the street, apparently, unharmed. The fusillade lasted a few minutes and then ceased as the target had disappeared. A careful check showed that none of the police had been hit or even grazed.

The second episode happened at the new site and had a more unfortunate ending for the robbers. At that time, there was a bank on the northwest corner of 39th Street and State Line. The young bank robbers, obviously novices, made one serious oversight in their plans. Thirty-ninth Street was being paved from State Line to Cambridge Street, the first street to the west of State Line. The bank robbers drove up one Saturday morning, but, because the street was torn up, parked their car on 39th Street, one block from the bank. They then went to the bank, held up the bank attendants, scooped the money up in a sack, and made their way to their car. Meanwhile, the cashier picked up a shotgun, which was kept in the bank for emergencies, and ran through the back alley to a garage next door. Both robbers got into the car, started the engine, and the driver looked back to see if they were being pursued. At this moment, the cashier, who was now standing in the front door of the garage, raised his shotgun and fired. The charge struck the driver in the forehead. He slumped down in his seat, the car ran some distance without a driver and crashed into a telephone pole. The other robber, carrying the sack, jumped out of the car and fled.

Dr. Haden, who was driving up from the old campus, saw the crowd that was collecting, got out of his car, and went over to investigate. He was warned by some in the crowd that the driver of the car was a dangerous bandit. A quick glance at the wounded man convinced Haden that he was anything but dangerous. He walked up to the bandit, felt his pulse, and told the assembled bystanders that the bandit was unconscious but alive and should be taken

to the hospital at once. He was carried to the x-ray department, where an x-ray showed several pieces of steel in his brain. He subsequently recovered sufficiently to stand trial and to serve a term in the state penitentiary at Lansing.

These were some of the events that made those days exciting. There were also other episodes that contributed to the general excitement of those days, among them Cunningham's Tank, which was also provocative of much discussion and controversy. Dr. Orval J. Cunningham, chief anaesthesiologist of the Bell Memorial Hospital, spent a summer vacation in Colorado and was impressed by a story told him that, when patients developed pneumonia high in the mountains, they invariably died unless removed to a lower altitude. This suggested the idea to Cunningham that patients with pneumonia could be successfully treated at our altitude (about 800 feet above sea level) by increasing the atmospheric pressure. He could hardly wait to get back and test his new idea.

Soon after his return home, Cunningham secured from an engineering firm a large tank which they had employed in preventing caisson disease in workers who worked at increased pressures while laying piers under water. Cunningham placed the tank on the west side of the old outpatient building, connected a compressor to it, and began to treat patients. It was soon obvious that his tank was too small, for news of this new treatment for disease spread like wild fire, and there were soon troops of patients waiting for treatment. For what were they treated? Originally, Cunningham's idea had been to employ the treatment in lobar pneumonia and results were encouraging. However, as there were few patients suffering from pneumonia at that season, he was soon treating patients with hypertension, diabetes, arthritis, glaucoma, pernicious anemia, and congenital syphilis. He told me once that he was convinced that his treatment improved syphilis since it increased the oxygen content of the tissues and oxygen destroyed the *Spirochaeta pallida*. Similarly, he informed me that this increased oxygen content of the tissues caused the red blood cells to take up more oxygen and in that way improved anemia.

Since an ever-increasing number of patients continued to stream in, Dr. Cunningham purchased a site at 33rd and Harrison Streets, Kansas City, Missouri, and had a large tank constructed according to his specifications. It was at least five times as large as the original tank, and, in its planning, Cunningham showed both skill and imagination. Inside it resembled a Pullman sleeping car. Entry was from the side into a vestibule, whose outside and inside doors could be closed tightly. From the vestibule one passed through a tight-fitting door into the "car" itself. Here

there were seats, as in a Pullman, while above were the berths ready to be let down and made up, just as in a sleeping car. There were washrooms and toilets. When the patients were ready for their "trip," each took his appointed place, the doors were closed tightly, the signal was given, and the compressors started to work, eventually raising the pressure within the tank to three atmospheres. If anyone wished to enter the tank after the pressure within had reached three atmospheres, he first entered the vestibule, whose two doors were then tightly closed, the pressure was raised to three atmospheres, then the door into the tank was opened, and the individual entered. The reverse process was carried out when an individual left the tank.

The patients often remained in the tank under increased pressure for two weeks or more. When we consider the difficulties involved in serving meals, turning on water faucets, flushing toilets, emptying bowls—all under three atmospheres of pressure, we must admit that the doctor, at least, had ingenuity when he overcame these handicaps. Opinions differed regarding the value of these treatments. In general, the doctor had many firm champions among the laity. One of these, who told me personally that the tank had cured his diabetes, although he died later of diabetic gangrene, persuaded Cunningham to go to Cleveland, where he built the doctor a monster tank, costing a million dollars. This windfall removed Cunningham from our midst. The tank itself produced quite a stir among the Clevelanders for a time, then its popularity faded, and it was eventually sold for junk.

(To Be Continued Next Month)

An Unusual Finding

(Continued from page 493)

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ESSAY CONTEST ANNOUNCED

A competition for a \$250 award for the best manuscript submitted by a medical student, intern or resident on any subject pertinent to and concerning occupational health has been announced by the Central States Society of Industrial Medicine and Surgery. The contest closes at midnight on December 31, 1966.

A second competition, open only to residents in occupational medicine, is announced by the Industrial Medical Association. The award, consisting of an embossed scroll, will be presented at the Association's annual meeting to the author or authors of a paper published in the open literature on a subject germane to occupational medicine which is judged to be the most outstanding of those submitted. Reprints entered in the competition must be published during 1966 and submitted prior to January 15, 1967.

Both contests will be judged by members of the Committee on Merit in Authorship of the Industrial Medical Association. The criteria will be largely based on clarity, validity, objectivity, originality and style. Complete contest rules may be obtained from: Industrial Medical Association, 55 East Washington St., Chicago, Illinois 60602.

Provision for the Mentally Retarded

Being an Historical Survey of the Changing Concepts of State Care for the Mentally Deficient in Kansas

JOSEPH G. HOLMAN, M.D., *Tulsa, Oklahoma**

THE ESTABLISHMENT IN KANSAS of an institution for the mentally deficient in 1881 was a part of the general "era of institutional expansion" which characterized America in the last half of the 19th century.

The work of Howe in Massachusetts in 1848 initiated the concept that the state governments should properly accept the responsibility of caring for the mentally deficient. Until this time there was no institution of such kind anywhere in the United States, either public or private. Howe, encouraged by the efforts and success of Guggenbuhl in Europe, convinced the Massachusetts legislature to incorporate an institution for the care and benefit of those individuals residing in the state who were "condemned to hopeless idiocy and left to their own 'brutishness.'" After a three-year trial period in 1855, such an institution was formally established by the State of Massachusetts and provisions made for its yearly endowment. Other states quickly followed the example and set up their own institutions (New York, 1851; Pennsylvania, 1853; Ohio, 1857; Connecticut, 1858). By 1898, 24 public institutions were operated by 19 states and one by the City of New York. By 1917, all but four states had some provision. Of the 37,000 patients then institutionalized, more than 31,000 were in state-sponsored areas; 3,000 were in other facilities, but were nonetheless state-supported, and less than 3,000 were in private institutions.

The desire to establish a state program for the mentally retarded in Kansas came about largely as the result of a very small group of men who presumably were sincerely interested in bettering the lot of the mentally disturbed within the state. Such a feeling of sympathy was operating throughout the nation. It was, perhaps, a facet of the general trend toward humanism and reform which was characteristic of the era. Most of such activity, however, had to be carried to success by the efforts of a relatively small number of impassioned workers. The great bulk of lawmakers and public officials moved slowly and

often reluctantly on the issue of mental retardation. Eventually, a snowball effect seemed to hasten the passage of legislation in the various states beginning from the eastern seaboard and spreading westward.

How much the desire to project the image of a progressive community or a forward looking state came to play in the passage of the eventual legislation can probably never be determined—but also never disregarded. The situation in Kansas was such that few persons in state authority felt the need for legislative action pertaining to the mentally disturbed prior to 1878. A few poorly backed pleas went unheeded by the lawmakers and in general there was no keen interest shown in the matter.

Beginning in 1878 and for the several years following, a Major J. B. Abbott from Johnson County, instituted his efforts in behalf of the state's mentally disturbed. The Major, having served in the Union Army, was also widely known as a fighting Freestate pioneer. His newly-found interest was, no doubt, kindled by the fact that his young daughter was mentally retarded.

In 1881, Abbott's bill to build an educational facility for the feeble-minded was passed by the Senate. The House of Representatives, however, had voted down "Fool-School Abbott's"* bill and in disappointment, the Major prepared to leave for home. It was then that Representative James F. Legate, one of Abbott's old associates in the border wars, rose in the House to make a determined plea for the bill. After mentioning that Kansas would fall behind the other states in this matter by virtue of her inaction, he made a further and much more dramatic plea on behalf of the state's feeble-minded children—charging that the emotional turmoil of the state's bloody history had produced this effect on several of its youth.

After Legate's impassioned speech, the House, visibly shaken by the episode, decided upon another vote. After the roll-call procedure, the measure was overwhelmingly voted in, its opposition shattered.

The law provided \$16,000 for the establishment of "an asylum for the feeble-minded and imbecile

* This paper was written by Dr. Holman while he was a fourth year medical student at the University of Kansas School of Medicine. He was presented the 1965 History of Medicine award by the Committee on History of the Kansas Medical Society. Dr. Holman is now serving a residency in pediatric allergy at St. John's Hospital, Tulsa.

* A term of familiarity bestowed upon the Major by some of his more active legislative opponents after repeated attempts by Abbott to seek passage of his bill.

youth" of the state. Its purpose, however, was not to be that of an asylum at all. As stated in the original bill of March 8, 1881:

The object of this institution is to train and educate those received so as to render them more comfortable, happy, and better fitted to care for and support themselves.

It was, in fact, a school created and supported by the state for the education of its feeble-minded children. This concept was the prevalent one of the time. The supposition was that the feeble-minded needed only a different kind of a school in which to study, and that if this were established, they would be able to go to it, learn from it, and then "graduate" with the ability to function adequately outside its walls. Bitter disappointment was soon to dampen untempered enthusiasm.

For the moment, however, the plans were immediately developed, preparing for the first group of students at the new institution. An old university building at Lawrence was repaired for \$1,200 and on September 1, 1881, the facility was formally opened under the title of the Kansas State Asylum for Idiotic and Imbecile Youth. The capacity of the asylum was set at 30 pupils; during the first ten months, 22 had been enrolled. Their causes of imbecility were listed as follows:

Severe sickness in infancy	7
Accident	2
Congenital	10
Undetermined	3

That historical events were assumed to account for the condition of these unfortunate individuals (as had been previously argued in the legislature) can be seen from the first report to the Board of Trustees of the State Charitable Institutions. In this report, the first director appointed to head the newly created asylum stated:

The large percentage of cases in which imbecility may be clearly traced to effects produced upon the mind of the mother at a critical period, furnishes another illustration of the terrible ordeal through which the women of our pioneer and border history have passed, and a touching petition in behalf of these wards of the state, rendered helpless and almost mindless by the horrors of the turmoil which have marked the settlement of Kansas.

Since the new institution was set up as a school, there quickly arose the problem of securing appropriate pupils. It was soon found that not all those for whom admission was sought were capable of performing adequately at the school. Similarly, during the first ten months, there were five students dis-

missed, the following reasons being given:

Incapable of improvement	3
Insanity	1
Epilepsy	1

This screening, performed by the director, H. J. Greene (a former Protestant minister with less than a high school education), was done "when it became apparent that the best interests of the institution demanded it." Again the philosophy of the law creating the facility was expounded:

The institution is a school, in the view of the law establishing it, and inmates who are devoid of even the rudimentary means of acquiring the simplified ideas of education can scarcely be classed as pupils, and prevent by their presence, the admittance of children who could be benefited and who are obliged to remain unaccepted as pupils on account of the limited accommodations of the asylum. A proper regard for the welfare of the pupils and the success of the institution has caused a rejection of all cases affected by chorea and epilepsy. The propriety of excluding this unfortunate class from the presence of persons so ready to observe and imitate the peculiarities of those diseases, is too obvious to require defense, or even explanation.

During the first ten months 23 applicants were rejected because of:

Epilepsy	10
Insanity	2
Helplessness	2
Incapable of improvement	1
Over age	8

The fact of the establishment of the asylum was not immediately appreciated, or, perhaps, approved, by the great mass of citizens at this early date. The information of its opening was given to all county probate judges and to the press with belief that such candidates for admission to the school would be channeled there directly. Those relatively few persons who were eager for the school's existence and who anxiously awaited the opening of its doors were quickly cautioned by Superintendent Greene. Trying to forestall public over-optimism, he stated:

The asylum will not cure mental deficiency—even in those cases which denote but little imbecility, slow progress will be made under the best possible conditions.

Still, there remained the feeling that those pupils, who were judged as suitable for the school, could achieve remarkable improvement. This was illustrated by the writing of a teacher at the asylum during its first year. The pupil, she wrote,

who knew almost absolutely nothing, now reads on page 64 of Webb's Word Method First Reader, counts to 300, adds small numbers, writes from an easy copy—and from an almost mute condition can speak and sing correctly, simple words and pieces.

Some of the pupils were given help with their difficulties of articulation—speech impediments, and stuttering, being judged as obvious manifestations of mental retardation. However, the unique contribution made by the institution seemed to be in the patience and perseverance of its instructors. These were the qualities which permitted some of the improvement shown in pupils who had hitherto remained refractory to nearly all learning experiences attempted by the common schools.

The objectives being fulfilled by the asylum during this first year of its existence were enumerated by Superintendent Greene in the Biennial Report for 1881-1882. First of all, he felt that many households were relieved at having an adequate institution to provide care for their unfortunate members. Secondly, members of this population group were being withdrawn from the vice which so often surrounded them. They would also be spared the association of "the great army of criminals from which the state recruits her jails." Some pupils, it was hoped, would be so improved by their stay at the institution as to render themselves capable of leading normal productive lives after their education at the asylum was completed. Finally, moral and religious teachings seemed to demand action, as noted by the following Biblical quotations included in the state report: "Gather up the fragments, that nothing be lost," and "Comfort the feeble-minded."

The term "feeble-minded" however, came to denote a rather specific and exclusive group of individuals. This meaning was defined in the Biennial Report for 1884 and the argument advanced for the need of a name change for the institution:

We believe that the true object or purpose of the institution is in a measure defeated, owing to a misconception occasioned by the title given the institution when first established. There is a wide distinction between idiocy, imbecility, and feeble-mindedness. Idiocy is rarely susceptible of improvement or cure; imbecility may be temporary, or confined; while feeble-mindedness may be simply nervousness, timidity, or sensitiveness caused by sickness, neglect, harsh treatment, or improper governing upon the part of parents or guardians. This class may be incapable of advancement in the common school, and owing to their unfortunate condition are apt to drift into imbecility or idiocy. This institution should care for this class, rather than the confirmed idiot or imbecile. With this purpose in view, we would respectfully recommend that the name of this institution be

changed to "The Kansas Institution for the Education of the Feeble-Minded."

With this concept in mind, those pupils admitted for the second term were judged capable of satisfactory improvement and were given the following admitting diagnoses:

Congenital	10
Severe sickness in infancy	7
Undetermined	1

Six students were dismissed during the term because of "incapability of improvement." The authority to dismiss such pupils was given to the superintendent by the Board of Trustees of the State Charitable Institutions. The understanding was that those dismissed would thus create a vacancy for those who seemed likely to benefit from the training of the institution.

The philosophy of the Board was stated as follows:

In view of the fact that this asylum is really a school, and that its main purpose is that of training pupils to meet as fully as possible the requirements of life, it seems unjust to the numerous applicants who could be benefited by its methods, to retain those who utterly fail to advance under the most skilful and conscientious efforts.

Other leaders in the field agreed. The superintendent of the Minnesota Institution for the Feeble-Minded stated:

In selecting as I have done, only the most improvable cases from the applications made, I have striven to give the greatest good to the greatest number, and I could do this only by taking the best.

The New York Asylum for Idiots reported that the goal of their "school" was really only to educate their pupils to be employable. The following is a statement of policy of the institution written in 1882:

The casual visitor to our asylum may go away with the impression that the mental exercises are predominant. The term "school" sometimes applied to such institutions, may have fostered the idea. However, if an inquiry is made by such visitor, he will be told at once that exercises are only means to an ultimate end; and that, to make the pupils capable of some employment. He will be told that all the mental training is subordinated and contributory to that main purpose. Even the amusements are made to subserve the same end.

In Massachusetts, the School for Idiotic and Feeble-Minded Youth reported:

Our object in all this is not to keep the children out of mischief, although their very small mental caliber renders their hours of intellectual effort in the school-room necessarily short, not to get the work out of

them, since it is much harder to teach them to work than to perform the labor one's self. It is to develop them, so far as their organization permits, into healthy, active, and industrious men and women who, when they return to their families at the expiration of their term of instruction and training here, may be no longer regarded by those among whom they live as brute beasts or helpless imbeciles, but that they may be able to bear a helping hand in whatever goes on at home; and even, if possible, earn a practical self-support.

The law creating the Kansas institution was similar in spirit to these concepts. The legislation read that,

The object of this institution is to train and educate those received, so as to render them more comfortable, happy and better fitted to care for and support themselves; to this end, the trustees shall provide such agricultural and mechanical training as they are capable of receiving, and as the facilities furnished by the state will allow, including shops, and employment of teachers of trades.

It became increasingly apparent, however, that there was need for the housing of many persons who were obviously incapable of learning in any degree. As early as 1887, Superintendent Greene wrote concerning the problem:

Moved by the many pleas from homes afflicted by the most doleful dispensations of unvarying laws, ignorantly and viciously violated, you resolved during the present year, to enlarge the scope of the institution, and while preserving the school idea dominant, admit those apparently unable to acquire ordinary instruction.

Meanwhile, the schoolwork continued with the pupils being sorted into groups according to predicted ability. The first class pursued usual studies of the common school while those in the second class attempted to learn object lessons. All worked at crafts (sewing, knitting, basketweaving, etc.) in the afternoons allowing close comparison between the two groups. An interesting observation of this situation appeared in the Biennial Report:

Instances are frequent, where such children (low-grades) learn more readily and perform more correctly than pupils of greater intelligence. Perhaps this is accounted for by the absence of that intuitive reflection which disturbs the execution of a copy by suggesting a fancied improvement, which cognition is almost wholly unknown to the imbecile mind. These children are therefore particularly susceptible to training in simple mechanical processes, and able to execute them with the highest possible degree of uniformity.

With the increasing number of extremely low intellect applicants, the reputation of the state institution as a school became even more difficult to convey

to the public. Consequently, the plea for an official renaming of the institution began as early as 1884. In the words of the superintendent:

The term "idiotic" conveys to so many people the idea of repulsiveness that it is very desirable to abandon it. The word "institution" is comprehensive. It may embrace the correct idea of an asylum and a school which idea would correctly represent the manifest purpose of the establishment. The term "feeble-minded" may include all grades of deficient or enfeebled intellect. Such change of name, it should be considered, would not affect the status of the asylum toward idiotic applicants, who are entitled to custody and care whenever the means of the institution permit.

It was realized by Superintendent Greene that there was a large number of low-grade applicants in the state whose guardians were pressing for admission to the asylum. The interest from the beginning of the institution, however, had been placed on school room instruction of dull-learners rather than on custodial care of totally-helpless idiots. This idea was reflected in the title: "State Asylum for the Education of Idiotic and Feeble-Minded Children." That the "idiotic" class was necessarily uneducable seemed to make no impression. Hence, a rather exclusive system of admissions came to be set up for entrance into the "school"—the system being slanted to favor the admission of the so-called higher grade applicants at the expense of the "low-grades."

The law creating the institution was interpreted to mean that the institution was set up primarily as an educational facility and was so named. Because the idiotic applicants were incapable of deriving benefit from the education offered and because adequate physical facilities for their care were not otherwise available at the institution, they were refused admission or were soon terminated in order to provide places for other more promising applicants. These low intellect persons were not actively discriminated against, but were merely victims of the circumstances. Superintendent Greene's sympathy and interest in this class was demonstrated when he wrote:

A child, incapable structurally, of learning a single letter in the combination which guards the secrets of mental knowledge, who goes home able, voluntarily, to care properly for his bodily needs, has truly and as successfully graduated from the school of life as the gifted valedictorian of the university.

After four years in the old classroom building at Lawrence, the legislature, in 1885, relocated the state asylum on a hill* northeast of the city of Winfield.

* This particular hill is the third in a series of hills around which the city is situated. The term "Third Hill" quickly became a local slang term for the institution, and even yet is used as a synonym for a place of confinement for persons of marginal or deficient intelligence.

That the institution came to be located near this southern Kansas town was the result of at least two factors. It was believed by some leaders in the field of mental retardation that a quiet, peaceful, rural area offered the ideal environment in which to attempt training of these individuals. Secondly, the selection of a site was a political compromise between the northern state legislators who represented the interests of the University of Kansas and those legislators from the southern and western counties who were protesting further expenditure at Lawrence. The compromise resulted in the University of Kansas getting further appropriations and the southern counties getting the permanent site of the asylum.

A change of name was again sought by Superintendent Greene when he stated that the old name "conveys to the popular mind a repulsive idea. Already, we have pupils and their friends, who are seriously incommode by the term 'idiotic' as applied to the school, which is their reliance for developing a useful and happy life." A new name, however, was not to materialize until the turn of the century.

On March 22, 1887, the entire institution, including 31 pupils, was moved from Lawrence to Winfield. There was a solitary building on the new 40-acre site (which tract was secured at no expense to the state). The structure, termed Main Building, had been erected at a cost of \$25,000. It included facilities and quarters for dining, superintendent's office and home, school rooms, and girls' and boys' dormitories.

Expanded accommodations allowed for more effective continuance of the schoolroom plan based on the two-level principle. In the First Class, the curriculum for the common schools was used, apparently with a fair amount of success. Even a kindergarten was being planned, according to the 1888 report. In the Second Class, object lessons were taught to those "as yet, and perhaps ever, incapable of receiving the instruction books afford."

Although the concept of the asylum as an institution worthy of separate and continued existence seemed to be well understood by the year 1890, there were those who habitually dissented. Consequently, the State Board of Charitable Institutions, was compelled to print the following assessment in defense of the work of the institution:

It was a question with many, when this institution was founded, whether the state ought to care for these children. It is a noteworthy fact that these children are mainly from the homes of the poor, where the care given them has not been and cannot be suited to their needs. It would seem that the state is doing a good and tender service to humanity by fostering this institution, and we think it should be enlarged.

As the number of inmates at the asylum increased,

the old problem of accommodation was again encountered. The original idea as stated in the law creating the institution was to discharge the pupils by the time they reached the age of 21. Such pupils were to be returned to their respective counties. There was, in fact, no provision established for the care of mentally retarded patients over the age of 21. Employing concepts of the time (which were incorporated into law), the pupils for whom the school was intended, and who had been subjected to the learning experiences of the institution, would be capable of independent existence upon reaching 21. That such an idealistic concept had not been realized was manifest. First of all, those persons of marginal intelligence who did receive some degree of benefit from the teaching of the asylum were received with a great deal of suspicion and aversion upon returning to their old home environments. This was not necessarily a fault of the asylum, but was rather a fact of situation which existed throughout the state. The impossibility in most cases of finding a suitable or sympathetic sponsor in the old home county area resulted in these individuals reverting back to a position of total dependence. Many would end up in the county poor-houses and most had little chance of ever leaving them.

There was additionally, that second group of inmates for whom no provision had been made by the state in its original concept to provide schooling for dull learners. These were the individuals who were totally and permanently incapable of learning to any practical degree. Their numbers had been gradually increasing at the institution, at the insistence of urgent guardians, and clearly represented difficulties in procedure.

They were a problem in management at the asylum because of inadequate facilities and personnel to care for them. They were additionally a problem in disposition since it was soon realized there was no hope of educating them. To return them to their homes at age 21 was obviously inappropriate and inadequate management. Realizing these problems inherent in the existing situation, the Board of Charitable Institutions recommended that provision be made for adult idiots to be confined to a separate ward in the proposed new state asylum for the insane.

For various reasons, this idea was not acted upon—the insane asylum being completed with no regard to housing of adult idiots.

The 1890 census indicated there were 2,100 mental defectives living in the state who could benefit from institutional provision and care. The asylum at Winfield had a waiting list greater than its total enrollment (102 inmates in 1892) and had inade—

quate capacity to care for even its limited number of new admissions.*

Still the disposition of the low-grade patients was unresolved. Not all were convinced that they should be state supported. Some had no interest in wanting to raise the necessary state revenue for their care, and others were reluctant to abandon the "school-idea" at the Winfield asylum in order to accommodate increasing numbers of such low-grade patients. If provision were to be made for these unfortunates, either a totally new facility would have to be provided or an enlargement would be necessary at the Winfield plant.

The position taken by the superintendent in the official report for 1892 concerning care for low-grade patients seemed to signal future developments:

I believe it to be the duty of every state to care for its unfortunates, and I know of none more so than the feeble-minded. What is more pitiful than to see a human being with the physique of a man and the mind of a child entirely at the mercy of thoughtless or ill-meaning people? Especially are our sympathies aroused for the girls of this class. Cared for and protected, they may become in a measure useful and self-supporting, and certainly happy; neglected, they are at the mercy of the vicious. Humanity imperatively dictates that the state should no longer delay to fully provide for all of this class.

In 1893, Dr. F. Hoyt Pilcher, a rural practitioner from a community near Winfield named New Salem, was appointed superintendent of the asylum. This man and his successor, Dr. C. S. Newlon, represented the difference to which opinions were divided concerning the philosophy of state care for the retarded. Dr. Pilcher** pressed for expanded facilities at the asylum for the admission of greater numbers of the mentally-deficient throughout the state. The 1890 census report had yielded some rather disarming figures (2,100 mental defectives in the state who could be considered for confinement) and Dr. Pilcher believed the solution to the problem was to expand the Winfield facilities to the point of total accommodation. He believed that provision should be made, not only for the imbecile or borderline-intelligence group, but also for the severely retarded as well. The stress was placed on admitting all susceptible persons, regardless of degree of incapacity. With such em-

phasis, however, on greater numbers (and many of these would be low-grades) the "school-concept" was given secondary importance. This was a part of the beginning philosophy which was to prove itself so influential in the course of growth of the institution.

Coincidental with Dr. Pilcher's first term of office, the Legislature had delegated \$6,000 to be used for the purchase of farm land adjacent to the institution. A barn was built and a pasture fenced. A request was made for additional patient buildings. The prospect of increasing enrollment, and therefore increased expense, was apparently a factor in the investment of tillable land and the installation of potentially profitable improvements. Any capable inmate of the institution was to be set to work on the property in order to realize some return to the state for its expenditures.

During Dr. Pilcher's first term of office (1893-1895), the enrollment increased from 87 to 112. Many of the admissions, however, consisted of the very severely retarded. Discipline and the maintenance of decent conduct became increasingly difficult problems. Dr. Pilcher proposed a program of castration to be instituted as a treatment method for self-molestation. Before his term was done, he had castrated 11 males.

Although supported by the medical journals at the time, the news of castration at the institution was sensational for the local lay press.

Public indignation arose over Pilcher's methods; it was sustained by an eager press until his term of office ended.

The election of a Republican governor in 1885 resulted in Dr. Pilcher's replacement by Dr. Newlon. The new physician-superintendent was of the conviction that the asylum was meant to be a school and he endeavored to re-establish for it that role which had been allowed to lapse during the administration of his predecessor. His concept of the institution was stated as follows:

The act of the Legislature creating this institution says: The object of this institution is to train and educate those received, so as to render them more comfortable, happy, and better fitted to care for and support themselves.

In another paragraph, it further recites:

And shall cause suitable accommodations for the comfort, maintenance, and education of such pupils as may be admitted to said asylum. The only interpretation possible is that a school was intended; hence, our rehabilitation of the schoolroom. Notwithstanding the institution's heretofore rapid degeneration into a hospital, by the admission of the lowest grades of diseased mentalities, good results are noticeable, attributable of course to—our teachers.

* Morality continued to be a factor in explaining the etiology of patients' admitting diseases. Of 16 mentally-retarded youths admitted in the period 1888-1890 who were listed only as "congenital," two were "known to be caused by drunkenness of parents, and five from imbecile or insane parents."

** Dr. Pilcher attended Washington Medical University in Baltimore and was granted the M.D. degree from Ensworth Medical College, St. Joseph, Missouri, 1883.

Twenty-three of the brightest scholars are taught the common-school branches in what we generally term the "high schoolroom." This department includes letter writing every Wednesday afternoon and the Sunday school lesson once a week. Two afternoons in the week are devoted to scroll sawing for the boys and sewing lessons for the girls. Drills, marches and calisthenics are also a part of the routine work.

Dr. Newlon's reluctance to admit severely-retarded children met with tremendous public reaction to the contrary. For various reasons, the institution had come to be looked upon from the outside as a place for the confinement of the profoundly-retarded as well as the multi-handicapped. As this reputation spread among the state, more and more persons with affected family members became interested. The influx which Dr. Newlon tried to discourage represented a backlog of such patients which had accumulated since the settlement of the state. Concerning such persons who were already admitted, he wrote:

The custodial department (has 36 of the) low-grade imbeciles, many of whom are epileptic, crippled, deaf, and dumb. The semi-bright ones are taught to care for and amuse their more helpless companions—little improvement is expected.

The area of patient labor (for those who could perform it) was coming to be considered as a proper matter-of-course. Both the advantage to the patients and to the state was commented upon by Superintendent Newlon:

I am of the opinion that more industrial pursuits should be taught, and departments fitted for a thorough exemplification of shoe repairing, carpentering, blacksmithing, and broom, rug, mattress and brush-making. In the absence of tools and machinery for the above named callings, we utilize the labor of every available girl and boy in the asylum. Boys break rock for roads, chop wood, carry coal, haul slop, clean up grounds, scrub, make garden, work on the farm, in furnace rooms, laundry, barn and kitchen. Girls wash dishes, do dormitory work, make garden, assist in laundry, kitchen, bakery, dining-rooms and nursery. This labor, in addition to their hours in school, gives them a much-needed recreation and practical knowledge of the every-day duties of life. We have saved the state a great deal of extra expense for hired labor.

The report concluded with an admission of frugal pride, stating that the per capita expense at the institution was lower than for any other school for the feeble-minded in the United States.

Politics again shifted the superintendency at Winfield and in 1897, Dr. Pilcher was returned to his former position at the asylum. He re-stated his ideas concerning the necessity of housing all the state's

unfortunates who could be accommodated. Of those at the institution, he reported that 75 per cent were not capable of learning enough to sustain them on the outside for the "battle of life." These persons, he reasoned, should clearly be cared for by the state for the remainder of their lives. Because the circumstances had not basically changed in his two years' absence, Dr. Pilcher again instituted his surgical sterilization methods for curtailment of behavioral disorders. There was, in fact, a rather substantial reserve of accrued untreated cases. The records show that over the ensuing one-year interval, 47 additional castrations were performed.

With the defeat of the Populist Party gubernatorial candidate in 1898, Dr. Pilcher was relieved for the last time of his position at the state asylum. His philosophy of confinement for the greatest possible number of retarded patients had been in harmony with the general feeling of a large part of the state's population. This concept formed the basis upon which the institution operated for the next half-century.

For the second occasion, Dr. C. S. Newlon replaced Superintendent Pilcher (1899). Newlon's plans for predominantly schoolroom activity were now even more difficult to continue owing to the increased numbers of low-grades, to the lack of facilities for classrooms and inadequate teaching staff. Rather than a pure schoolroom approach, Newlon set about training the inmates by means of practical experience:

In the absence of proper facilities, I have been utilizing the labor of teachable pupils by detailing them to work under instructed employees. It is surprising how quick a semi-idiotic boy will learn to break rock. Some have a penchant for wheeling coal; others like to work in the garden; a few are handy on the farm; all are assigned duties in and about the buildings; by that means we learn to what work they are best adapted, and put them at it.

The disciplined life of "School" and labor was extolled by Dr. Newlon as providing the most complete and total care for the patients:

Experience proves that schools and well-regulated labor are profitable to the well-being of that class of bright pupils who are subject to epilepsy. Schools train the mind and body of the feeble-minded, discipline and civilize the imbecile, and bring the idiot nearer God and humanity.

Two new buildings had been provided by the state between 1897 and 1900 for the housing of additional patients. With more adequate facilities now available, Dr. Newlon graded all inmates according to their supposed or appraised abilities to learn. A three-grade system was set up and apparently, all the patients were included in the structure of the new program. There was a kindergarten-primary class, an in-

intermediate class (most of whose members, at the end of a year knew letters, could recognize many short words, could write, although not in connected form, and could count to 50), and an advanced class. In the advanced class, the progress of some students was quite rapid, although the majority were slow to learn. Some could write a legible hand and could count to 100.

In his analysis of the entire educational program which he so diligently pursued, Dr. Newlon remarked that "The mental improvement of nervous and backward children depends largely on the intelligence of the teachers."

With the exception of Dr. Pilcher's sterilization accounts, the early official reports of the asylum contained very little in the matter of medical problems encountered. Nearly all attention had been devoted to education or disposition. Even the diagnosis made at the time of admission was more likely to contain more philosophical than medical content.

The following quotation from the Biennial Report for 1902 concerning the management of epileptics illustrates the status of adjunctive medical care:

In addition to such outdoor exercises as can be given epileptics, the medical treatment is kept up. Some success has attended our efforts—enough to justify the "try, try again" maxim. Hard work in the open air prolongs life and keeps down the inherent viciousness.

The institution remained as a facility for youth and the problem of disposition of persons reaching age 21 continued unresolved. According to Dr. Newlon however, the problem often solved itself:

Very few (of the patients) live to a greater age than 21—undoubtedly a providential provision. The blighted tree and injured fruit in like manner die early.

Still in an attempt to admit to the institution on a selective basis, Newlon regretted in 1902 that he was forced to admit a large number of "low-vitality children." This occurred, he stated, because "political and community pressure was too great to oppose." The institution was becoming increasingly popular throughout the state and was being sent patients from every area (total enrollment of 370 in 1904). To attract more persons who might be likely to benefit from the school's educational program, Dr. Newlon urged renaming of the institution. This was officially accomplished in 1901, the new name being "State School for Feeble-Minded Youth." This name was "more euphonious" Newlon said, and "gratified the parents and friends."

The institution was to keep its school designation only a very short time. As early as 1906, the new

superintendent, Dr. Ira W. Clarke* emphasized the need for a fundamental broadening of its objectives:

A very large percentage of the custodial class must always remain unimproved in their mental condition, and the only duty is to care for this class in the most humane way. *This school is in law a school for feeble-minded youths, but should be changed to a school and home.* Legislative attention to a more extended provision for the idiotic and feeble-minded is an imperative demand upon the state. For a score of years, the opinions of philanthropists and of those interested in sociologic work have been steadily advancing in a certain direction, until now they are unanimously convinced that as a matter of public policy, all the feeble-minded class should be segregated and provided for by the state. Various are the reasons which have led to this conviction, and to most persons, they are easily obvious. In this state today there are in the county poor-houses, and in the communities at large, a large number of this class who are a menace, a blight and a misfortune, both to themselves, and to the public.

The aim of the institution and the primary objective of those directing its policies would gradually come to mean the segregation of those mental defectives judged to be a threat to society. The purposes of the institution were officially listed in the 1908 Report as follows:

First, to furnish a home for helpless, hopeless children who are defective physically as well as mentally. For this class of children nothing more can be done than to tenderly care for them and heal their physical infirmities in a scientific way. Second, to train a class of children whose minds are feeble, yet capable of a considerable degree of improvement and, under competent instruction make satisfactory progress in school and in industrial occupations. Third, to relieve relatives and society in general of the burden of caring for and controlling irresponsible and uncontrollable children in the community.

The concept of housing and caring for both classes of patients at the school was one which was apparently often misunderstood. Civic-minded persons were coming to the consensus that the benefit to be derived from the Winfield institution was that of confinement of individuals distasteful to society. Relatives of patients, however, were more receptive to the idea of schooling being of primary importance, and that every patient admitted could be expected to show improvement. Commenting on this fallacy, Dr. Clarke stated:

The parents should understand, for many have been grossly misinformed, that the chief purpose of our work is to provide schooling for the individuals who,

* Ira W. Clarke, Superintendent, 1905 to 1911, Eclectic Medical College, Cincinnati, M.D. 1880.

in our best judgment, are capable of betterment, but not to develop capable, bright children from a hopeless custodial class, whose life at best is a vegetative one and can never be anything else.

Following Dr. Clarke's suggestion and the urging of others at the time, the name of the institution was again changed in 1909 to the "State Home for the Feeble-Minded"—emphasis for the first time being placed on the custodial rather than the educational aspect of the facility. The patient load gradually was increasing as more funds became available from the Legislature for new buildings. Despite crowded conditions, a great fire which occurred in the summer of 1911 resulted in no loss of life—a tribute to the organization and efficiency of the administrator and employees. The old Main Building which was the original structure on the site was completely destroyed. Many records were lost in the blaze and a number of patients had to be furloughed back to their homes because of lack of accommodations.

Teaching classes were becoming composed more and more of the lower-grade patient according to the 1914 Report. Whether this was due to higher standards being set by the teaching staff or whether there were actually more admissions of severely retarded patients is not known. The kindergarten classes were described as "large" and work attempted by the pupils was discouraging:

Further than these simple attainments, it seems useless to try to advance them, for the little knowledge gained is soon lost, and I question the wisdom of attempting to waste time and energy of both pupil and teacher in trying to accomplish the impossible.

The classification of patients on an objective basis was begun in 1914 in an attempt at more efficient and appropriate management. Simon-Binet intelligence tests were given to all new admissions, and classification was carried out on the bases of age, sex, size, appearance, and mentality. The result of the effort was the demonstration (to the satisfaction of the staff) that fully 75 per cent of the children were unable to be benefited by the institution's schooling program. The following quotation is Superintendent Cave's comment on a typical child of this group:

Trying to teach a feeble-minded child anything from books, and expecting him to retain sufficient amount of such knowledge for any practical purpose in life, seems to me about as discouraging a proposition and as fruitless of results as anything could possibly be.

With the realization that the majority of patients could not benefit from pure classroom activities, increasing effort was made to provide manual labor and mechanical pursuits for those physically able to work. The superintendent stated:

I have concluded that our greatest problem is not what to do for this happy and carefree population, but what to do with them. Employment of all of the surplus energy that is now going to waste is a matter I want to ask you to carefully consider.

Inmate-workers had been utilized as early as 1890 when Superintendent Wiles had suggested that the "big boys" should be deployed on the land as a means of helping to support the institution and of occupying the idle time of the male population. In the following years, more of the capable men and boys were employed. Most worked at farm work and gardening. Others were placed in the kitchen, laundry, and bakery. The evolving method of treatment was reflected in another name change in 1919 to Winfield State Training School. The female patients had generally been unemployed but requests were now made for equipment such as knitting machines and rug looms in order to provide work for the girls and, at the same time, realize a saving to the state by the production of useful articles.

Superintendent C. M. Drennan, an automobile salesman from Winfield, assumed the duties as superintendent after the election of a Democratic governor in 1922. In order to improve the efficiency of the school in the area of industrial training for its members, Mr. Drennan reorganized the staff of the institution under a physician, steward, chief engineer, psychologist, dietitian, matron, and farmer. All classes of deficient intellect were hoped to be reached by appropriate training departments. By sufficient study of the mentality of new admissions, it was planned that each patient would be fitted into a work and training schedule in which he was capable of performing. The beginning of a Parole Department was instituted by which patients could be returned to work outside the institution once they had acquired a skill. Since it was estimated at the time that approximately 2 per cent of the school children in Kansas were three years or more behind in their work and that there was a total of 10,000 mentally-deficient persons residing in the state, an appeal was made by Superintendent Drennan to initiate a program of care for these persons at the "grassroots level" throughout the state rather than attempting to provide for all of them at the institution. Mr. Drennan's two-year term of office, however, was ended upon the election of a Republican governor, and the former superintendent, Dr. W. W. Cook was re-appointed. Such innovations as had been made in staff organization and patient management were largely discontinued in favor of a more custodial approach.

Concurrent with such matters as industrial training programs and the establishment of the Winfield plant as a state enterprise, the philosophy that the mentally-retarded represented a threat to the status of society

continued to exist. The age requirement for admission to the state home had been lifted from the limit of 15 years as early as 1909, provided that the capacity of the institution would permit and that special permission was granted by the State Board of Control. Some persons were allowed to be committed by this maneuver who were judged to be potential threats unless they could be confined. A statement of contemporary thought was recorded in the 1916 Biennial Report:

Statistics show that a feeble-minded girl is three times as likely to find a mate as a feeble-minded boy, and also that feeble-minded girls are ruthlessly pursued by evil-minded men. While feeble-minded girls of child-bearing age should be segregated in state and county institutions, yet the institutions should be of sufficient capacity to receive all the feeble-minded, regardless of age or sex. There should be a direct legal process for the commitment of the feeble-minded. The cost of segregating the feeble-minded in institutions will be offset by the decrease upon private charitable agencies and in the decrease in the charity work of the counties. The hundreds of thousands of dollars spent by the counties and private charitable agencies are spent chiefly in maintaining degenerate families.

With the mounting public concern over the effect of procreation by mentally-retarded persons in the population, the Legislature in 1917 first passed a bill authorizing the asexualization of the insane and feeble-minded.*

An assistant physician to Superintendent Cook, Dr. T. E. Hinshaw, presented the following defense of the position taken by the Legislature and by the staff of the institution:

Asexualization will be condemned by some as being too harsh a measure, but it becomes incumbent on those who would discourage it to offer something better—for the future will compel us to act.

If society by her philanthropic efforts annuls the law of the survival of the fittest, then self-interest will compel her to adopt measures which will prevent the multiplication of those who at best can only add degeneracy to the race.

A concurring statement made by Dr. Cook eight years later (1928) demonstrated the persistence and entrenchment of the philosophy:

It is clearly the duty of the state to provide a home to shelter the unfortunate *children* who are a menace to society unless they are given institutional supervision.

* Dr. Pilcher's castrations of dozens of inmates (performed for behaviorial reasons) in the 1890's had been done without benefit of legal authorization.

Because of the involved legal procedure required, superintendents of all the mental institutions agreed "that the red tape should be reduced to make (the law) more effective." This consensus was determined in 1933 when the law controlling sterilization was as follows: The superintendent of the feeble-minded hospital must report in writing to the governing board of the institution that he,

believes the physical or mental condition of any inmate would be improved thereby or that procreation by such inmate would be likely to result in defective or feeble-minded children with criminal tendencies, and that the condition of such patient is not likely to improve so as to make procreation by such person desirable or beneficial to the state, it shall be lawful to perform a surgical operation for the sterilization of such inmates.

Dr. Hinshaw, being the chief medical officer at the state school during this period was not only the person who actually performed the surgical procedures, but was also the prime spokesman in support of the measure as a desirable tool in the practice of eugenics. Some samples of his writing on the subject are confirmatory:

Of all the known causes of mental defectiveness, heredity is the most prolific. It will, in all probability, always be a burden on the shoulders of the tax-paying public. Assuming this to be true, the remedy which promises the best results is segregation or sterilization pushed to the limit in all suitable cases. We readily admit that this sounds a little radical, but the magnitude and increasing seriousness of the situation demands radical measures.

There is no panacea for feeble-mindedness. There will always be mentally-defective persons in the population of every state and country. How necessary, then, to use every means to limit this constantly increasing menace by every possible expedient. The borderliners, the high-grade morons, should receive first attention, for they are the ones most likely to find a mate who may or may not be a borderliner. It has been said that a feeble-minded pretty girl is a dangerous member of society. In the furtherance of this idea, the practice of sterilization of the unfit has been in vogue in selected cases for several years. This, of course, with the authorization of the State Board of Health. Segregation of those not in the above category is the only other alternative to this question.

The per capita cost to the state of running its training school at this time was the second lowest in the nation and was \$100 less than the average. The general economic situation was no doubt a factor which influenced the state's expenditures. Even the oil and gas royalties from the Winfield property were distributed among all the institutions or were held by

the state. From 1926-1928, the royalties figured to \$4,000 per month, and by June, 1928, the total of such funds accumulated by the state treasury amounted to \$117,000. The superintendent's indignation concerning the situation was expressed publicly:

Just why this institution should be penalized by placing its receipts from the oil royalty in the general fund, to be used for building pergolas at state parks or art galleries at the state educational institutions, rather than given to the institution that produced it at great cost to its physical properties is something that I cannot understand.

It is evident that the per capita cost of the institution would have been materially higher had the screening of patients been more thorough. When Dr. B. A. Nash and a group of ten graduate students from the University of Kansas School of Education made an investigation of the Training School, they found that there were 60 cases who had Intelligence Quotients (Binet) of 65 or greater and that five cases studied had Intelligence Quotients greater than 100. "This institution," Dr. Nash stated, "is a dumping ground for all sorts of undesirable or unfortunate persons who are sent without any expert evidence that the cases are sufficiently mentally-deficient to be institutionalized on those grounds.*"

A candid view was obtained by Dr. Nash during his visit to the institution in 1932. This report by an "outsider" is interesting in its assessment of the conditions as they appeared to such an observer:

The "Training School" at present does not function in this capacity. Because of the policy of low operating costs, it has not been expedient to institute a program of training or development of the inmates, and so the institution has been largely merely a custodial institution. With the exception of the farm and dairy, and activities such as the dining hall, laundry and bakery, there is nothing in the institution that is vocational in nature. In these activities, practically no real training is given and no formal instruction is attempted.

Due to the war effort, no reports of an official nature were submitted during the 1940's. However that the institution continued to be almost totally custodial in its approach was well-known. There were no paroles and no dismissals.

After the close of World War II, a nationwide reaction was expressed concerning the conditions

which existed in state mental institutions. Kansas was no exception, and in 1948, there was so much public criticism being leveled against the institution at Winfield (as well as the other state institutions) that a revision of policy was begun. Added to the staff were a clinical psychologist, a director of recreation, an art director, a music director and a cosmetologist. Progress continued to lag behind public expectations however, and in 1951, the superintendent, Mr. L. C. Tune (who had served the institution in some capacity for 27 years), was dismissed.

For a short interval, a resident from the Menninger School of Psychiatry in Topeka was made acting superintendent. His reports described some of the methods existing at Winfield which had developed in an effort to maintain control:

Instruments of punishment were found about the hospital—blackjacks, metal handcuffs, leg irons, and instruments to exert pressure on an individual's thumbs when traction was exerted. Requests were still made for the extraction of all the teeth to prevent one patient from biting another.

It was reported that, because of the overcrowded dormitories, a number of patients had made their beds in lofts of the cow barns, and others had put up huts in obscure portions of the grounds, especially the trash dump.

Innovations, begun in 1951, consisted of providing an adequate diet and securing medical services. The Cowley County Medical Society members contributed their time and effort in screening and examining patients. An externe program was developed from the University of Kansas School of Medicine. The entire philosophy of management was altered with respect to the patients so that they were regarded as human beings in need of sympathetic care rather than as mere custodial charges of the state.

Out of this period of readjustment of goals and values has emerged the present status of the state's care for the mentally-disturbed. Beginning in 1952, the Biennial Reports have presented the conditions, aspirations, and plans of the state school in such a manner as has come to be expected of a modern-day institution of this sort. Cooperation exists among the school and the various other medical facilities operated by the state. Consultants from the medical school are frequent guests, as are visiting physicians from various local areas and private hospitals. All physical facilities have been vastly improved and expanded. The staff is headed by a physician acting as the superintendent and appointed by the State Board of Social Welfare. Serving with him are a team of physicians who have responsibility for patient care within their various areas. A modern hospital with

* The parents of juvenile delinquents eagerly sought admission for their children at Winfield rather than at one of the state correction facilities. For some reason, intelligent orphans ended up at Winfield as well, ten of whom were transferred to the State Orphans Home in Atchison after the publication of Dr. Nash's report.

excellent surgical suites, autopsy quarters and physical therapy equipment and personnel adds completeness to the well-ordered complex. A pre-admissions and social service keeps in contact with patients' relatives and encourages their interest and support. Registered nurses supervise each patient building and hospital floor. A course of instruction is conducted for all aides in order to better equip them for their jobs. Modern clinical laboratories and technicians are provided in order to secure the maximum in patient benefit.

The present status of facilities in Kansas for the mentally-retarded includes in addition to the Winfield Center,* the Parsons State Hospital and Training Center and the Kansas Neurological Institute. The Parsons facility, originally the State Hospital for Epileptics, was transformed by the 1953 Legislature into a second center for the care of mentally-retarded children. Those provided for there include children who are not severely physically handicapped between the ages of six and 21. The Neurological Institute was begun in 1960 with the acquisition of the old Winter Veteran's Hospital facilities in Topeka. The object of this institute, as stated in the law, is to "provide for the evaluation, treatment and care of the mentally-retarded, training of personnel, and for

research into the causes and prevention and proper methods of treatment and training of mentally-retarded children."

Though the facility at Winfield has undergone several changes in designation, its mission has been revised but once. The 1881 law was modified slightly in 1953 in order to define the institution as presently known. The mission is "to examine, treat, educate, and rehabilitate the persons admitted or transferred thereto so as to make such persons more comfortable, happy, and better fitted to care for and support themselves." An additional mission is "to provide care or physical rehabilitation for those persons admitted or transferred thereto who, because of age or physical handicaps, cannot benefit from an educational program."

What the future holds for the mentally-retarded person is only now in the act of being realized. The familiar debate concerning the best care for the patient and at the same time, preserving and improving the society, may be expected to remain an issue whereby men are divided by opinion. Although no course of action is entirely predictable, neither is there a total lack of guidelines from which to speculate. One of the values of history comes with the realization that contemplated procedure is contingent upon past accomplishments.

* The present name of the institution, Winfield State Hospital and Training Center, came into being with a 1957 Act of the Legislature.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

REFERENCE LISTS

How long should reference lists be? There is rather general agreement that in most of the articles in state journals a list of five or six references will usually be adequate. Except in special review articles, or research articles, complete lists of references are not needed, and, in fact, are out of place. A general guide is to include in a reference list: (1) Only articles which have actually been read in the original (not an abstract or a translation) and (2) Only articles which are actually mentioned in the text of the paper.

How many reference numbers should be in the text? Remembering that they are distracting to the reader as he goes through the article, they should be eliminated if they serve no purpose. If a quoted author appears in the reference list only once, it is obvious that this is the article to which reference is made, and no "superior number" is necessary for it cannot be confused. Papers are written to be read, and it is desirable to keep them interesting and to avoid distractions whenever possible.



Respiratory Difficulty and Sudden Death During Parturition

THIS WAS THE THIRD KUMC admission for this 36-year-old Negro woman who was admitted to the obstetrical service in labor at 5:30 p.m. on April 6, 1963.

She had first been seen in the prenatal clinic on August 21, 1962, with a complaint of amenorrhea. Her last menstrual period had been June 13, 1962, and the estimated date of confinement was March 20, 1963. The physical examination was unremarkable except for a grade i-ii systolic pulmonic murmur. Uterine size was compatible with a ten-week gestation. She was seen a total of 15 times throughout the remainder of her pregnancy, and with the exception of intermittent abdominal pain which was felt to be secondary to a small fundal fibroid and an excessive total weight gain of 36 pounds her prenatal course had been entirely unremarkable. Fair quality uterine contractions every five minutes began at 9:30 a.m. the day of admission.

She had been in good health throughout her life. Her only known allergy was to penicillin. She had had a tonsilectomy and adenoidectomy and an appendectomy with right salpingo-oophorectomy done elsewhere for unknown indications. She was a gravida 9, para 7, aborta 1, with 7 living children. Her largest baby weighed 9½ pounds, the smallest 6¾ pounds. Her last delivery was in 1953.

Her mother died of leukemia. Otherwise the family history was unremarkable. There was no history of diabetes. A review of systems was unremarkable.

The blood pressure on admission was 130/80. The

examination of the heart was negative except for the grade ii systolic pulmonic murmur previously mentioned, 1 plus pedal edema, and a term-sized uterus with a small fundal fibroid. Rectal examination revealed a cephalic presentation at a -3 station. The cervix was 60 per cent effaced and 1 cm. dilated. The membranes were intact and the fetal heart rate was 144. Contractions were of fair intensity at five minute intervals.

Her hemoglobin was 10.0 gm. per cent; hematocrit, 32 ml. per cent; VDRL, nonreactive; blood type, O Rh positive; urine, negative for albumin.

The early phase of her labor was uneventful, and by 10:00 p.m. the head had descended to a -1 station with the cervix completely effaced and 1 cm. dilated, and her contractions were of good quality at three minute intervals. At 10:30 p.m. spontaneous rupture of the membranes occurred and meconium-stained amniotic fluid was passed. At 10:45 p.m. she developed urticaria on her wrist, arms, and trunk. She said she was nervous and that she developed "hives" when she was nervous. She was given 50 mg. of diphenhydramine intramuscularly and 50 mg. by mouth. By 11:00 p.m. the urticaria had disappeared. At 11:20 p.m. she passed approximately 15 ml. of bright red blood from the vagina. Vaginal examination revealed the head to be at a 0 station, and the cervix was 2 cm. dilated. No cervical lesions were felt. Contractions were of very good quality at three minute intervals. Her blood pressure was 140/70 and the fetal heart rate was 120. She was given 75 mg. of meperidine and 25 mg. of promethazine slowly intravenously. At approximately 11:27 p.m. she suddenly developed severe respiratory distress and her blood pressure and pulse and the fetal heart rate were unobtainable. The uterus was flaccid. The fetus could not be palpated free in the abdomen. Her pupils were

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, gynecology and obstetrics, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

dilated and nonreactive. An endotracheal tube was inserted, and artificial respiration with oxygen and closed-chest massage were begun. She was given 0.8 mg. of atropine and 100 mg. hydrocortisone succinate intravenously, and 5 per cent dextrose in water with levarterenol was started. Although the electrocardiogram revealed electrical cardiac activity there was no other sign of life. Paracentesis resulted in a dry tap on the right, but 50 ml. of blood which subsequently clotted was aspirated on the left. Laparotomy was done and at 12:57 a.m. a stillborn 3,545 gm. infant was delivered by cesarean section. The uterus was unresponsive to oxytocics and a supracervical hysterectomy was necessary for hemostasis. Her blood loss was about 1500 ml., and 1900 ml. was given in replacement.

Throughout this period there was no sign of life except for the electrical activity recorded by the electrocardiogram. At 12:57 a.m. on April 7, 1963, she was pronounced dead.

Dr. Mahlon Delp (moderator): Are there any questions for Dr. Havenhill now?

G. William Jaquiss (student*): Was a hematocrit obtained on the blood that was drawn from paracentesis?

Dr. Marshall A. Havenhill, II (resident in obstetrics and gynecology): No.

James Laidlaw (student): Did the patient terminally have any abdominal pain, vomiting or nausea?

Dr. Havenhill: She never complained of any nausea or vomiting, and so far as I know she did not vomit. I was standing at the bedside when she developed the respiratory distress.

David Lowell (student): What were the heart rate and weight on admission?

Dr. Delp: She weighed 164 lbs. She had a normal pulse rate.

Larry Markel (student): Was the patient receiving oxytocics other than those listed in the protocol during the hospitalization?

Dr. Havenhill: No.

Joseph Saunders (student): Were there complications in the other deliveries?

Dr. Havenhill: No, only a 9 lb. 8 oz. baby.

David Wiebe (student): Were bleeding and clotting times done on her?

Dr. Havenhill: No.

Curtis Wolf (student): Was a significant heart murmur documented on the previous admissions?

Dr. Havenhill: I do not think that this one was significant, and I did not note a heart murmur being present on any of the previous admissions.

Mr. Jaquiss: Was the head engaged at the time the 50 ml. of blood was tapped?

Dr. Havenhill: It was engaged immediately after that.

Mr. Laidlaw: Was there any evidence of blood clotting in the leg veins or other evidence of thrombophlebitis?

Dr. Havenhill: Only her 1 plus edema which she had for about a week-and-a-half, and we thought it was partially related to stasis and partially to her excessive weight gain.

Mr. Lowell: What was the nature of her respiratory distress and the auscultatory findings of the chest?

Dr. Havenhill: She was virtually unable to breathe; all of a sudden there was virtually no respiratory movement. I did not auscultate her chest.

Del Lutsenhizer (student): Had a D & C or a myomectomy of the uterus been done in the past?

Dr. Havenhill: No, the only operations were the appendectomy and the right salpingo-oophorectomy, and I do not know why they were done.

Mr. Markel: When was her salpingo-oophorectomy done, and when was her abortion?

Dr. Havenhill: Her abortion was in 1957; it was spontaneous. The salpingo-oophorectomy was probably done between then and 1953.

Mr. Saunders: Under what conditions was the clotting of the blood drawn from paracentesis noticed?

Dr. Havenhill: I inspected the syringe after about ten minutes, and it had a clot in it.

Mr. Wiebe: How darkly stained was the amniotic fluid?

Dr. Havenhill: Reasonably darkly stained; enough to make one apprehensive about it.

Mr. Wolf: Was any attempt made to withdraw more than 50 ml. of blood?

Dr. Havenhill: No.

Mr. Jaquiss: Could you give a better description of the palpatory findings of the abdomen at the time the uterus became flaccid and could not be palpated?

Dr. Havenhill: The uterus which previously had been hard became totally flaccid and soft as butter. The abdomen was not distended. The liver and spleen could not be felt. One could not identify a fetus separate from the uterus.

Mr. Markel: Had urticaria been observed previously at the clinic or the other admissions?

Dr. Havenhill: Not to my knowledge.

Dr. Delp: The patient did give a history of having had urticaria before, but it was not observed at any time.

* Although a student at the time of the conference in September, 1963, he, like the others referred to as students, received the M.D. degree in June, 1963.

Mr. Laidlaw: Was her chest pain a part of her respiratory episode?

Dr. Havenhill: No, this woman became unconscious almost instantaneously. One minute she could talk to us and the next minute she could not. She did not complain if she had pain.

Mr. Lutsenhizer: Did she have fever at any time?

Dr. Havenhill: We only take the temperature at the time of admission to the delivery room, and hers was normal at that time.

Mr. Wiebe: She never complained of chills?

Dr. Havenhill: No.

Mr. Lowell: Was the drop in fetal heart pulse from 144 to 120 during a contraction or was it just a plain drop?

Dr. Havenhill: It was not recorded; it dropped off even lower than that. I think it was just variability. The lowest recorded fetal heart rate before this one of 120 was 104, but these may or may not have been at a contraction.

Mr. Saunders: Could you describe the condition of the placenta at the time of delivery?

Dr. Delp: I think the pathologist should do that.

Mr. Wolf: Was there any bleeding from the venopunctured side?

Dr. Havenhill: No.

Mr. Laidlaw: Was there any additional laboratory work in addition to that given in the protocol?

Dr. Havenhill: No. The only other laboratory value noted was a blood sugar of 88 mg. per cent in 1961.

Mr. Jaquiss: When the uterus became flaccid, was there marked bleeding from the vagina?

Dr. Havenhill: No. There was no bleeding from the vagina other than what is indicated in the protocol.

Mr. Lutsenhizer: Is there any history of abdominal trauma?

Dr. Havenhill: No.

Mr. Markel: Exactly where were the two paracenteses performed?

Dr. Havenhill: About opposite to the anterior-superior iliac spine on both sides.

Dr. Delp: Does anyone else have any questions?

Dr. Frank A. Mantz (pathologist): I have three questions. First, did this patient have any other occupation than that of a housewife? Second, did she smoke? Third, did she at any time have any exposure to any noxious inhalants?

Dr. Havenhill: I do not know that she had any occupation other than a housewife; I think she worked for people in their homes. I do not think she smoked, and she gave no history of occupational contact with noxious agents.

Dr. Delp: She was sensitive to penicillin. Other questions? All right, we have no EKG; let us see the x-rays.

Mr. Saunders: In the KUB (*Figure 1*) taken on September 25, 1961, I see no bony abnormalities. There is a sacralization of the fifth lumbar vertebra. The psoas shadows are well outlined. The kidneys can be seen, and appear to be normal. The liver is apparent, and I see no abnormalities. There seems to be adequate pelvic opening. I see no calcification. There is no abnormality between the spaces.



Figure 1. KUB film taken on September 25, 1961.

Dr. Delp: I am sure that the key thing that the students felt this protocol reveals is that a pregnant woman succumbed in the delivery room, but there is other information here. I think there is not enough information to make an exact diagnosis and this is not perhaps even desirable, but there is enough information to form a differential diagnosis, and that is what I expect them to do. When I call upon Dr. Rockwell and Dr. Hayes later on, I shall expect them to confine their remarks to evidence revealed in the protocol, and not upon what the pathologists have found and has been talked about rather widely. I think I would also like to call on Dr. Azarnoff, perhaps, to answer one specific question with regard to the drug here.

Discussion

Mr. Markel: In review, our case today is that of a 36-year-old gravida 9, para 7, aborta 1 patient who had a relatively normal pregnancy and a relatively normal first stage of labor. Fifty-seven minutes after the rupture of the membranes she had the onset of acute respiratory distress and died in apparent shock. We therefore based our differential diagnosis on causes of sudden death during parturition. Considering causes of sudden death which are most unlikely we excluded organic heart disease, aspiration of vomitus, cerebrovascular accidents, herniation of the diaphragm, spontaneous pneumothorax, and ruptured spleen. These entities are ruled out because of the absence of clinical findings and the lack of a typical clinical course. Toxemia of pregnancy can be a cause of sudden death in a 36-year-old woman, but is ruled out in the absence of hypertension, albuminuria and significant edema.

An anaphylactic reaction secondary to drug sensitivity could give symptoms similar to those seen in our patient, but it was ruled out on the statistical rarity of such reactions to the agents used and its inability to account for the entire clinical picture.

Venous thrombosis is ruled out based on the nature of the onset of the symptoms as well as the course of subsequent events and lack of associated findings such as chest pain and tenderness in the legs. Sepsis is ruled out on the basis of lack of fever and the fact that the membranes ruptured only one hour before her death.

Placenta previa has an over-all incidence of about one in 200 deliveries. Characteristically the condition is heralded by slight to severe painless vaginal bleeding, usually bright red in color, coming on without warning and which increases with duration of delivery. The uterus is usually soft and painless, and resting tone is normal. The condition is ruled out on the basis of lack of sufficient vaginal hemorrhage to explain the patient's course and the absence of physical findings on rectal and vaginal examination.

Rupture of the uterus occurs about once in every 2,000 deliveries. It shows a high incidence in grand multiparas, and accounts for five per cent of maternal deaths. Acute death occurs in hemorrhage and shock; vaginal bleeding is present in varying degrees. The causes of rupture are inadequate pelvis, hydrocephalus, violent uterine contractions, cesarean scar, and spontaneous rupture in multipara. Uterine rupture is usually accompanied by tonic uterine retraction and a retractive uterus following rupture. Normal uterine contractions nearly terminally, a flaccid uterus terminally, and inability to palpate the fetus in the abdomen makes this diagnosis unlikely. But then a rupture occurs in .2 to .3 per cent of all deliveries

in varying degrees of severity. One to 5 per cent of all these patients have a fetal termination with a clinical picture of shock. Hemorrhagic shock may be complicated by hypofibrinogenemia, often seen in this condition. Separation of the placenta results in concealed hemorrhage in 20 per cent of the cases, the remainder having significant vaginal bleeding. The concealed type is difficult to diagnose and is compatible without taking its course. But the absence of abdominal tenderness, uterine pain and tenderness, nausea and vomiting, and hypertension all render this diagnosis less likely.

In hemorrhagic shock dyspnea may be a salient feature, but we cannot attribute the precipitous onset of severe dyspnea in our patient to hemorrhage alone. Although we cannot definitely rule out this condition on the clinical evidence, we feel that our primary diagnosis offers a better explanation of our patient's respiratory distress as well as the other signs and symptoms.

Although amniotic fluid embolism had been described earlier it was not until the publication of Steiner and Lushbaugh in 1941 that interest was aroused in the syndrome as of consequence as a cause of unexpected obstetrical death. While the incidence of this syndrome is low, expressed in cases per thousand deliveries, it is a common cause of obstetrical death, and should be suspect in every case of severe shock during labor, delivery, or the immediate puerperium. The syndrome is manifest by respiratory distress, dyspnea, shock, coma, hypofibrinogenemia, and uterine relaxation with a postpartum hemorrhage. A frequent finding is meconium in the amniotic fluid.

Patients are usually multiparas and in the older age group. The prenatal course is uneventful, and no complications are noted before labor begins. In some, as in our case, pregnancy lasts beyond the predicted date of confinement, and the fetus is usually larger than normal. Characteristically uterine contractions during labor are reported as being hard and violent, tetanoid or tumultuous. The first symptom is often a subjective chilliness. Blood pressure drops to shock level. There are often convulsions, either clonic or tonic in nature, with a rapid onset of pulmonary edema. Response to treatment is poor and death usually occurs in two to three hours.

As the maternal circulation is torn, it has also been postulated that the great intra-uterine pressure associated with severe contractions may cause rupture of the fetal membrane in the utero-placental region. This fluid dissects between the membrane and uterine wall as is shown by the frequent presence of blood, mucus, and lanugo hair in the uterine sinuses. Essential pathology is pulmonary embolization by this material

and in some cases mechanical obstruction of the vessels distal to the occlusion. It is believed that the presence of this material in the pulmonary vascular tree may produce reflex or anaphylactoid spasm in the non-occluded vessels. Mechanical and spastic factors produce pulmonary hypertension and right ventricular overload. Vascular collapse rapidly follows. It is of interest that in this syndrome which frequently occurs in multiparas a previous sensitization may possibly play a part. It is well known that placental tissue, amniotic fluid and decidua possess thromboplastic activity which will greatly decrease plasma fibrinogen. Studies utilizing amniotic fluid infusions can produce a similar picture in experimental animals. In this patient, the crisis apparently began with rupture of the placental membrane followed by the first evidence of anaphylaxis and urticaria 15 minutes later. After 57 minutes had elapsed the patient entered sudden and profound shock which followed by seven minutes a loss of 15 ml. of bright red blood through the vagina.

It is apparent from the evidence presented that the patient sustained an anaphylactoid reaction probably beginning at the time the membranes ruptured.

Dr. Delp: Thank you Mr. Markel. That was a very good discussion. What is your diagnosis?

Mr. Wolf: Amniotic fluid embolization secondary to incomplete rupture of the uterus.

Mr. Jaquiss: Amniotic fluid embolism.

Mr. Laidlaw: Amniotic embolism.

Mr. Wiebe: Amniotic fluid embolism and partial rupture of the uterus.

Mr. Lowell: Amniotic fluid embolism and partial rupture of the uterus.

Mr. Saunders: Amniotic fluid embolism with complete rupture of the uterus.

Dr. Delp: Now what would be your best second diagnosis, Mr. Markel?

Mr. Markel: My secondary diagnosis would be complete rupture of the uterus.

Mr. Saunders: Placental abruption.

Mr. Lowell: Same.

Mr. Wiebe: Ruptured uterus.

Dr. Delp: What was the significance of her bleeding as it was described in the protocol?

Mr. Lutsenhizer: This could have been secondary to a laceration of the cervix, and might have been secondary to the primary cause of death.

Dr. Delp: Mr. Lowell, this patient received some medication intravenously. Do you think this had any relation to subsequent events?

Mr. Wolf: No, I do not.

Dr. Delp: Do you think it is possible?

Mr. Wiebe: It has been recorded that patients

during pregnancy have had anaphylactic reactions to meperidine.

Mr. Saunders: I think that an anaphylactic reaction could occur, but I think in this case it is unlikely.

Mr. Lowell: I think that the order of events probably makes it unlikely, especially since there is a very small incidence of anaphylactoid reaction secondary to the agents they used.

Dr. Delp: Mr. Laidlaw, the patient had some very violent and dramatic signs. What is the disturbed anatomy and physiology involved here?

Mr. Laidlaw: Well, I think the patient had massive embolization of amniotic fluid to her lungs causing, if not a complete obstructive block, a reflex vasospastic phenomenon in the pulmonary tree, acute right ventricular failure and a big drop in the left ventricular output.

Mr. Markel: The only thing I could add is that it was the particulate matter in the amniotic fluid and not the fluid itself.

Mr. Wolf: I believe that it resulted in peripheral vascular collapse.

Dr. Delp: Do you think that there was an element of anaphylaxis here, Mr. Markel?

Mr. Markel: Yes, I do.

Dr. Delp: How Much?

Mr. Markel: I do not think you can say the anaphylaxis was immediately responsible for her death.

Dr. Delp: What was the pathogenesis for the phenomenon of marked respiratory distress?

Mr. Jaquiss: There probably has to be a previous sensitization to the particulate matter of the amniotic fluid.

Mr. Markel: I do not think that urticaria has ever been described, at least not in my reading, associated with anaphylaxis, but we are calling this "anaphylactoid-like" reaction; in other words the patient's death is very similar to anaphylaxis.

Dr. Delp: Anaphylactoid?

Mr. Lutsenhizer: Yes. It resembles an immediate anaphylactic reaction, but the basis of it is vasospasm and acute right ventricular overload.

Mr. Wiebe: It has been postulated that there was no previous sensitization. This is the difference between anaphylaxis and an anaphylactoid reaction.

Mr. Wolf: I do not feel that anaphylactic reaction had anything to do with our patient's course. I think it was the fluid.

Dr. Delp: Dr. Rockwell, we would like some comments from you.

Dr. Wayne L. Rockwell (obstetrician): As far as the differential diagnosis is concerned, I think Dr. Havenhill went to a great deal of trouble on the protocol to help us rule out uterine rupture even

though the clinicians at the time did not seem to be so certain as he seemed to be in retrospect.

Sudden causes of death in a laboring woman are really relatively few. The possibility of abruption has been mentioned, and this is a real possibility. If the pressure is high enough there can be an auto-extraction of the placental material and thromboplastin-rich material is injected into the maternal bloodstream causing an immediate intravascular coagulation. This fibrin gets down in the pulmonary tree and can actually totally obstruct the pulmonary tree, so that these people are thrown into acute pulmonary hypertension with acute dilatation of the right ventricle and die instantly. In this case there are two points that are most against it. One is that the woman did not have a tetanic uterus which usually goes with abruption, and the second is that her membranes were ruptured. Our first rule when dealing with an abruption is to release the tension; with her membranes ruptured it is very unlikely that she could auto-extract from her placental site.

This brings us to the possibility of embolism. There is one other type of embolism that cannot be ruled out as far as the protocol is concerned, and this is a possibility of air embolism. There have been 217 cases recorded in the literature, as of 1960, of women who died of air embolism, about 20 per cent of these were in the process of labor and delivery. The thing against this is the fact that most of these involve either intra-uterine manipulation such as an extraction at the time of delivery, a placenta previa, or a cesarean section. In this series that I'm talking about there were eight cases that were very similar to this patient, so the only way I would know to rule out the possibility of air embolism would be to do what Dr. Havenhill says was not done—auscultate the heart.

Dr. Delp: Dr. Hayes?

Dr. William L. Hayes (internist): All I know about amniotic fluid embolism is what I've read about it. The students have built a good case. I think there are some other conditions that could be considered, especially in the delivery or labor room when a woman goes into sudden cardiovascular collapse. Pulmonary embolism, that is thromboembolism originating in the great vein of the pelvis or in the lower extremities, could be considered. Uterine rupture and abruption of the placenta have already been mentioned. A cardiac arrhythmia or a sudden cardiac arrest should be considered, but it would seem that the electrocardiogram would exclude these possibilities. Myocardial infarction is unlikely to occur in a child-bearing woman. Rupture of the aorta could be considered, and this might occur in a patient 36 years old, either due to rupture of a luetic aneurysm or a dissection of medial necrosis of the great vessels. Acute heart failure in a patient with rheumatic dis-

ease would seem to be excluded by the clinical course. Anaphylactic reaction due to drugs should be considered.

I want to point out that the electrical activity which she had on her electrocardiogram may seem to be reassuring at times, but as this case demonstrates the electrical activity and the mechanical activity do not necessarily go together.

Just because she had an electrical complex on the electrocardiogram does not mean she was having an effective mechanical contracting heart, which she apparently was not.

Dr. Delp: Dr. Azarnoff, there are a rather remarkably small number of drugs involved here, but do you think any of those drugs could have given this patient an anaphylactic reaction?

Dr. Daniel L. Azarnoff (internist): I think the answer is very simple. I would have to say no. Either of the drugs (particularly meperidine) is known to produce a decrease in respiration and cardiovascular collapse; however I do not think this is what happened. I think one of the reasons obstetricians are so fond of this drug is that it may not be as potent as morphine in this regard. The thing in favor of its having a causal relationship is that it was given intravenously. This is the route of administration that is most likely to give anaphylaxis.

Pathology Report

Dr. Mantz: The only outstanding feature on gross examination was rather marked evidence of acute passive congestion involving the parenchymatous organs, quite consistent with that found in a state of shock. A disproportionate dilatation of the right heart was likewise consistent with shock, but also suggestive of acute pulmonary hypertension. A feature which I think was of some significance was an increase in the fluidity of the blood, but only in the pelvic area was there any evidence of hemorrhage. No free bleeding into the peritoneum or thoracic cavity was discovered and I strongly suspect that the blood obtained on thoracentesis was derived from accidental tapping of a dilated vein. Microscopically we found the usual evidences of pregnancy in the form of rather remarkable acinar hyperplasia within the breast. In the pituitary there was degranulation of the basophils having the appearance of hypertrophic amphophils. In addition there were clusters of exceedingly large chromophobes, the so-called pregnancy cells.

Smears from the buffy coat of the blood from the right heart contained masses of proteinaceous debris and occasional squamous cells—a most unusual observation, indeed, and one which immediately suggests introduction of amniotic fluid into the systemic circulation.

The lungs were relatively small and weighed only

680 gm. Grossly they presented only evidence of atelectasis with moderate collapse of the alveoli interspersed with areas of compensatory emphysema largely localized beneath the pleura. There was a remarkable degree of hyperemia throughout. In a few of the smaller pulmonary arteries (*Figure 2*) there was a peculiar type of amorphous material, within which one could identify deposits of a golden yellow pigment resembling bile. In addition there were fragments of particulate material not unlike hair shafts. Much more dramatic were the alterations within the alveolar capillaries (*Figure 3*), a fairly large number of which were occluded by masses of proteinaceous debris incorporating a few squamous-like cells in which nuclear material still could be identified. In some of these there was an accumulation of the same golden yellow pigment which strongly suggested bile by its morphology. In still others large amounts of fibrillary material strongly suggestive of mucus were encountered. This substance was brilliantly stained by the PAS technic and otherwise appeared to be mucus by its typical long strand-like arrangement. Incorporated in these mucoid em-

boli were rather large numbers of leukocytes frequently showing a somewhat linear arrangement (*Figure 4*) producing the so-called "combed out" appearance which is somewhat characteristic of amniotic fluid. It will be recalled that amniotic fluid is a watery emulsion derived in part from the secretion of the amnion and in part as a result of excretion of fetal urine. Incorporated within this are masses of lipoproteinaceous debris, the so-called vernix caseosum derived from the fetal epidermis, and mucus and bile derived from the meconium. The observations here demonstrated are absolutely typical of amniotic fluid embolus.

The source of such an embolus is difficult to determine in most instances. A rather detailed examination of the uterus which was surgically removed failed to demonstrate any evidence of a rent or a tear through which amniotic fluid may have gained access to the circulation. Histologic examination permitted us to localize the placental site by the presence of the large syncytial-type cells, the so-called placental site cells which many feel to be trophoblastic in origin. In this area there was massive dilatation of the maternal uterine sinusoids characteristic of the pregnant



Figure 2. Pulmonary artery containing amorphous debris, squamae, bile pigment and a fragment of hair shaft.

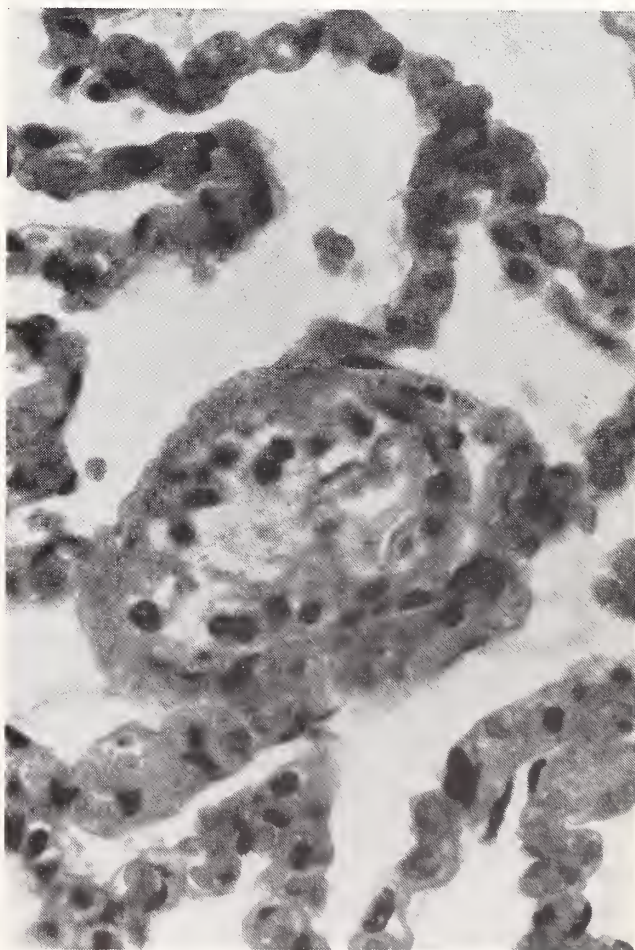


Figure 3. Pulmonary alveolar blood vessel containing squamae characteristic of amniotic fluid embolus.

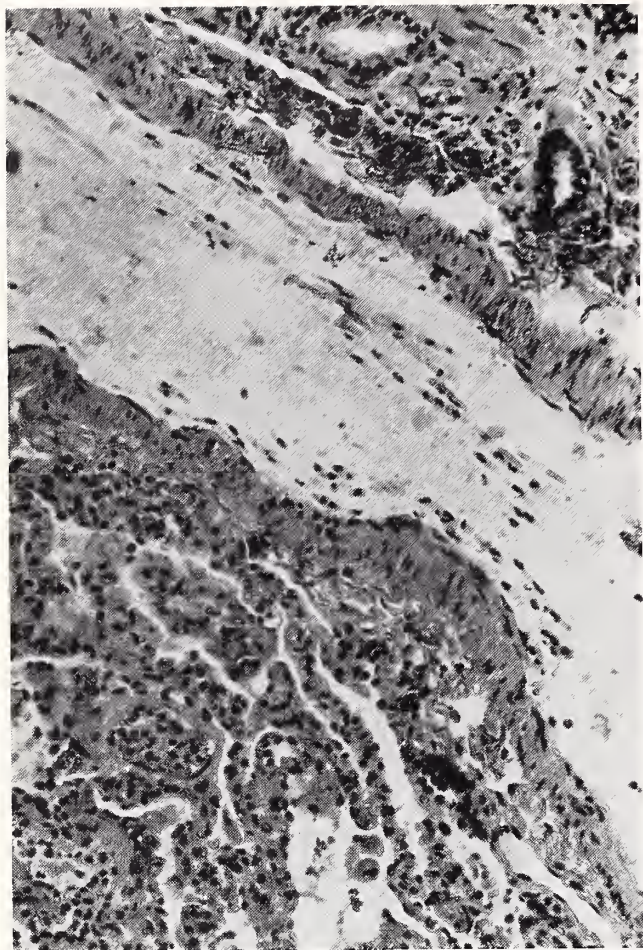


Figure 4. Small pulmonary artery containing shreds of mucus and polymorphonuclear leukocytes characteristic of amniotic fluid embolus.

state. Within many of the sinusoids we found evidence of amniotic fluid manifested by small squamæ and deposits of material which we presumed to be mucus. In an attempt to explain the portal of entry of this fluid into the sinusoids a small drop of India ink was placed on the inner surface of the uterus and we marveled at the fact that it sank very rapidly into the uterine wall as into a pack of gauze or through a sieve. Sections obtained from the uterine wall at this level showed India ink located largely within the sinusoids or within the tissues immediately adjacent. We would postulate that the amniotic fluid located between the chorion and the uterine wall was squeezed into the uterine sinusoids at the time of a fairly severe contraction which we are told immediately preceded the patient's sudden onset of symptoms.

One additional finding is worthy of some consideration. Scattered throughout the lung some of the smaller bronchi did show evidence of irritation in the form of great masses of mucus hypersecreted from the bronchial mucosa. This extended into the

bronchioles and poured out into the atria of the pulmonary lobules. Here the presence of mucus had incited a rather extensive inflammatory process creating small nodules which frequently incorporated foreign body giant cells. Alterations of this variety, so-called catarrhal bronchitis, are observed with exposure to noxious inhalant gasses, but also are frequently observed in individuals who suffer from allergic phenomena involving the bronchial system.

The autopsy of the stillborn infant showed the basic cause of death to be intrauterine hypoxia. This was manifested by two findings. The first of these was the presence of amniotic debris localized within the bronchioles and even aspirated into the alveolar spaces. This suggests that fetal hypoxia had stimulated respiration, thereby causing aspiration of the material into the pulmonary passages. A second finding shown well in this case was the migration of polymorphonuclear leukocytes into the walls of the umbilical blood vessels, a feature which frequently attends intrauterine hypoxia.

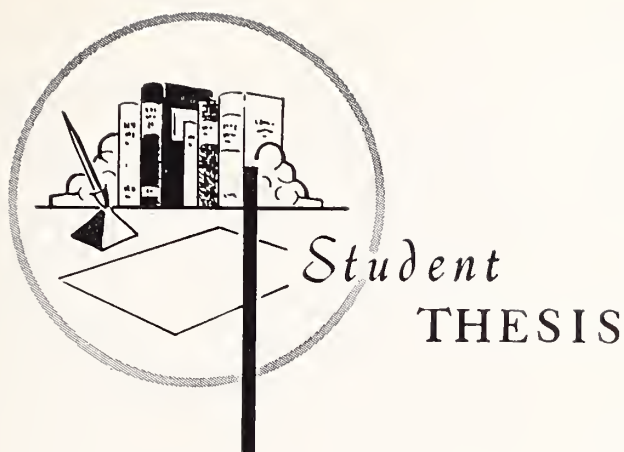
It has been determined that amniotic fluid embolus frequently is associated with certain epidemiological factors. All of these, I believe, were present in this case. The patient was a multipara who was well past term; she was an older multipara; and the size of the fetus was large but not abnormal. The mechanisms that followed the introduction of the amniotic fluid into the general systemic circulation are well known and two in number. The first represents derangements of the clotting mechanism of many varieties; and the second, obstruction of the pulmonary circulation. In most instances, as in this one, however, the degree of involvement of the small vessels is indeed insufficient to explain the alterations purely on this basis. We place some significance on the fact that this patient did exhibit a past history of hypersensitivity and showed morphological evidence consistent with it within her bronchial tree. We suppose that sensitization, possibly to amniotic fluid, was a factor here. To support this concept there is some experimental work in that Steiner and Lushbaugh were able to produce a comparable disorder in animals which had first received small sensitizing doses of amniotic fluid.

In summary, we may say that this was a multiparous woman in forceful labor past the due date who suffered the sudden onset of respiratory difficulty directly traceable to amniotic fluid embolism. We would feel that the symptoms which ensued are more probably on the basis of hypersensitivity than to pure mechanical obstruction of her pulmonary vasculature.

Pathologic Diagnosis

Prelactational hyperplasia of breasts.

(Continued on page 523)



Hyperthermia as an Adjunct to the Treatment of Neoplasms

JOHN W. BEEKS, Kansas City, Missouri*

THERE HAVE BEEN REPORTS dating back several decades regarding the efficacy of elevated temperatures in the treatment of malignant neoplastic disease. Rohdenburg and Prime reported in 1921 that in vitro and in vivo experiments with mouse sarcomas revealed that hyperthermia coupled with radiation provided a greater rate of cure and regression than radiation alone. They reported that the combination resulted in necrosis of tumor tissue without damage to normal healthy tissue. In 1937, Arons and Sokolof reported similar findings in a series of 30 cases of human cancer. They also concluded that combined roentgenotherapy and ultra-short wave therapy produced better results than radiation alone. In addition to better tumor regression, they found less radiation effect on the skin, less postoperative suppuration, and the heat seemed to provide some degree of analgesia for the patients.

There are several reports in the literature of apparent spontaneous regression of malignancies following severe febrile illness. Everson, who in 1964 reviewed more than 1,000 cases of presumed spontaneous regression reported in the world literature, mentions fever or infection as a possible factor of regression in some of the 130 cases which he considered adequately documented. Brunshwig a year

earlier reported on three cases of documented spontaneous regression in which two of the three had severe infections and fever during the time the regressions took place. Bell *et al* in December 1964, in the only reported case of apparent spontaneous regression of bronchiogenic carcinoma of the lung, described a 37-year-old patient who after a token dose of radiation (1,200 r) after thoracotomy for biopsy-proven inoperable cancer, followed a febrile course with subsequent remission of all radiologic evidence of his tumor and was still well after five years.

Experimental and Clinical Evidence

There have been several reports of experimental evidence of tumor regression following hyperthermia in animals. The inactivation by heat of a tumor producing material in rabbits was reported in 1940. Hunter reported on the inhibition of growth of S91 mouse melanoma in vivo by temperature stress. Mahaley and Woodhall reported on in vitro studies of VX2 rabbit carcinoma in which they found a definite increase in the efficacy of anti-cancer drugs when combining therapy with hyperthermia. They found that hyperthermic tissue was more sensitive to the action of the drugs than was normothermic tissue, and that normothermic tissue was more sensitive than hypothermic tissue. This was in spite of Woodhall's earlier report in which he was not able to reach any conclusion concerning the value of hyperthermia combined with other anti-cancer therapy in a series of 20 patients.

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Beeks is now interning at the St. Luke's Hospital, Kansas City, Missouri.

Selawry in 1957 reported on the effect of hyperthermia on three strains of cultured human neoplasms. He found that slight increases in temperature stimulated the growth of the cells, while a slightly greater increase in temperature arrested mitosis in metaphase, and raising the temperature more killed the cells. In his experiments he found that survivors of the temperature stress were thermoresistant as compared with controls. Selawry concluded his excellent review of the literature one year later by stating that he felt that the growth inhibiting effect of ionizing radiation could be increased by elevated temperatures. He suggested that practical application would depend on a knowledge of the optimal conditions of combination, but felt that hyperthermia combined with radiation was potentially useful against "radioresistant and poorly accessible tumors."

Brett and Schloerb were able to modify the behavior of Walker 256 carcinoma by subjecting the rats to cycled heat stress by infra-red heating. They were able to delay the appearance of and decrease the incidence of "takes" and produce a host survival time approximately double that of controls. They did not, however, report any actual tumor regression. They found, as did Selawry, that limited hyperthermia apparently produced a stimulatory effect with earlier appearance of the tumors.

Crile reports what are perhaps the most spectacular results in the experimental use of hyperthermia. He reports the heating of S91 melanoma implanted on the foot-pads of DBA/1 mice by immersion in 44 degree C. water for 30 to 40 minutes and the resultant complete destruction of a high percentage of the tumors without damage to the normal tissues of the feet on which the tumors were implanted. He also found that heat and radiation were synergistic or at least additive when given within a few hours of each other, regardless of sequence. Of great interest is his discovery that tumors were transplantable immediately after exposures to heat that were lethal to the tumors when left in situ. In his experience, small tumors were more radiosensitive than large tumors, and large tumors were more heat-sensitive than small ones. Crile had earlier concluded that some cancers in both animals and man were more susceptible to destruction by heat than the tissues they grew in.

Endogenous Fever in Cancer Patients

Fever has long been known to accompany many types of neoplastic disease, and Silver states that fever in the absence of infection may be a consequence of all types of neoplastic disease although it is much more frequent in hematologic disorders.

Boggs and Frei reviewed 127 patients with various malignancies and were unable to correlate the severity of febrile response in the absence of infection with the activity of the neoplasm. These authors report

that adults with acute leukemia have fever during 60 per cent of their hospital days. Fever is present 26 per cent of the time in Hodgkin's Disease, 14 per cent of the time in chronic lymphatic leukemia, 11 per cent in myelogenous leukemia, and 11 per cent in carcinoma of the lung. They report that 56 per cent of febrile episodes in these patients were unassociated with infection and presumably due to cancer. In their summary of the literature, they were able to conclude that fever not associated with infection was present in 41 per cent of neoplasms of the stomach, 66 per cent of the carcinomas of the colon and rectum, 44 per cent of the malignancies of the liver and gall-bladder, and in 36 per cent of the neoplasms of the uterus.

Browder *et al.*, in a series of 351 cases, report that 70 per cent of their patients with cancer have fever at some point in their course, but feel that infection or localized obstruction produced by the tumor is responsible for the fever in the majority of the patients and that fever due to cancer *per se* is actually quite rare. This is, of course, at variance with the series reported by Boggs and Frei.

Allen was able to correlate the onset of fever with the onset of tumor necrosis in rats with Walker 256 carcinoma, and suggested an endogenous pyrogen which was the product of tumor necrosis.

Suggested Mechanisms

There have been several suggested mechanisms of action for the apparent effect of hyperthermia on cancer growth. One of the earlier postulated mechanisms related the effect to a simple increase in metabolism which found the tumor which was already about to outgrow its nutrition supply, more nutritionally embarrassed than the normal surrounding tissue. This theory is shared by some of the more recent investigators, as well. Siracka and Siracka found that when Jensen's rat sarcoma was placed in a state of hypermetabolism through the use of triiodothyronine, an increase in radiosensitivity resulted. They found further that small tumors with presumed good blood supply became more radiosensitive with T3, but that large tumors with presumed poor blood supply responded poorly. They concluded from their studies that increased oxygen demand and consumption in the tissues induced by the hypermetabolic state played a role in the increased radiosensitivity. VanDen-Brenk's work suggests that hyperoxygenation likewise causes an increase in the radiosensitivity of tumors in mice. Whether these findings can be correlated with abnormal metabolic pathways reported in tumor tissue remains to be elucidated.

Stilwell's work with embryonic chick hearts suggests that heat causes mitotic abnormalities. This would agree with Selawry's finding of mitotic arrest

in metaphase in three strains of cultured human neoplasm.

Discussion

The data as presented continue to indicate that elevated temperatures increase the efficiency of the more standard forms of current cancer therapy. Evidence mounts that hyperthermia is of benefit not only when coupled with radiation but also when combined with chemotherapy.

While the mechanism for this synergistic or additive effect is still not known, present evidence would seem to indicate that the primary mechanism may be associated with the hypermetabolic effect which is known to result from elevated temperatures. This indeed could account for the reports of increased radiosensitivity following triiodothyronine and hyperoxygenation. The theory of tumorous tissue more quickly outrunning its nutritional supply when in a state of hypermetabolism is certainly not implausible.

If the above premise be true, then hyperthermia would appear to be the method of choice in providing this hypermetabolic state. This follows from the ability to provide hyperthermia to localized areas of the body through the use of ultra-short waves and possibly through the use of heated regional perfusates, particularly when combined with chemotherapeutic agents. This would spare the patient the stress of whole-body hypermetabolism as would be produced through the use of triiodothyronine or hyperoxygenation. One question which arises at this point, however, concerns metastatic neoplastic disease. It would seem logical to assume that if hypermetabolism is the mechanism responsible for increased efficacy of cancer therapy, metastases might be more effectively treated through means employing agents which place the whole body in a state of hypermetabolism, e.g.; thyroid compounds or hyperoxygenation.

Nothing in the literature yet explains the apparent paradox of the above premise and the reported high incidence of febrile responses in patients with neoplastic disease. A possible explanation might be found in the reports of slight temperature increases actually producing a stimulatory effect on the growth of experimental malignancies. The relatively low-grade febrile response usually associated with malignancies in the absence of infection might represent an ineffective attempt on the part of the body defense mechanism to fight the neoplasm, and the ultimate effect of the attempt is one which is detrimental to the host.

Certainly much remains to be done to elucidate the place of hyperthermia in the treatment of cancer. One of the more immediate goals should be to determine the optimal application of what is already known. There does seem to be sufficient evidence, however, that the use of hyperthermia particularly as

an adjunct to the more standard forms of cancer therapy is justified, particularly in those patients who have no manifest metastases.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

CPC

(Continued from page 520)

Increased degranulation of basophils, increased hypertrophic amphophils and "pregnancy cells" in the pituitary.

Recent surgical incision of lower abdomen with supracervical absence of uterus. (History of sudden maternal respiratory distress, delivery of stillborn term infant by cesarean section and supracervical hysterectomy.)

Interstitial hemorrhage, pelvic peritoneum, minimal. Amniotic debris in buffy coat of heart's blood.

AMNIOTIC FLUID EMBOLI, ALL LOBES OF BOTH LUNGS, ADVANCED.

Atelectasis with subpleural emphysema, acute passive congestion and focal hemorrhage of lungs.

ACUTE DILATATION OF RIGHT VENTRICLE OF HEART.

Acute passive congestion of liver and spleen.

Hydrothorax, minimal (600 ml. blood-tinged fluid, right; 300 ml. blood-tinged fluid, left).

Incipient acute hypoxic nephrosis, both kidneys. (History of profound shock one hour before death.)

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1. Nickerson, D. A.: Amniotic Fluid Embolism. J.A.M.A. 178:758, 1961.
2. Steiner, P. E. and Lushbaugh, C. C.: Maternal Pulmonary Embolism by Amniotic Fluid. J.A.M.A. 117:1245 and 1340, 1941.

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The President's Message

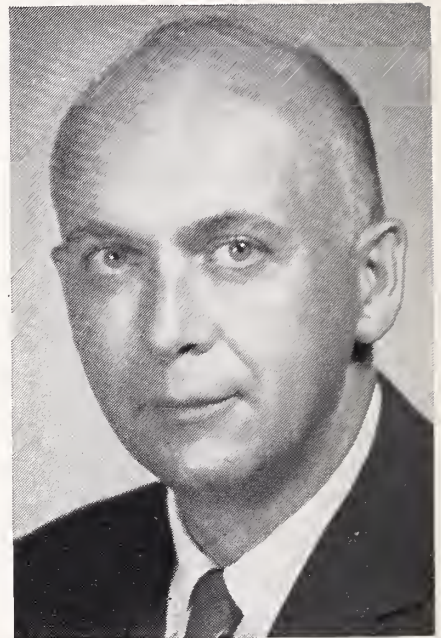
DEAR DOCTOR:

The Executive Committee on September 10 adopted this resolution:

The Kansas Medical Society and the entire world has suffered a great loss in the death of Will C. Menninger, M.D.

His devotion to the science and to the art of medicine, his achievements in the advancement of the practice of Psychiatry have been internationally recognized and are so completely apparent that words cannot increase his stature.

We in Kansas who knew him as a colleague and a friend suffer a personal loss and hereby wish to express to Mrs. Will C. Menninger, to his family, and to the Menninger Foundation our sympathy and with it the gratitude the Kansas Medical Society has for the innumerable professional and personal services he has rendered throughout his life as a physician and a devoted public servant.



Sincerely,

James H. McClure M.D.

President



Editorial COMMENT

Confusion exists over the requirements in the federal law for payment to physicians under Title XIX. With the publication of the official rules and regulations the answer is now clear. Considerable latitude will be given the states in the adoption of a payment formula to recipients of welfare under Title XIX, but certain guidelines are established.

D-5320. Requirements for State Plan

According to HEW regulations a state plan for medical assistance must provide that:

Fee structures will be established which are designed to enlist participation of a sufficient number of providers of services in the program so that eligible persons can receive the medical care and services included in the plan at least to the extent these are available to the general population.

D-5330. Criteria for Administration of the Plan

Again, from the regulations, the following is published to explain the above statement:

Participating practitioners include sufficient members of each profession, and a proportionate number of practitioners qualified for specialty practice within professions, so that the items of medical care and services included in the plan are available to eligible persons at least to the extent they are available to the general population. As a minimum, the participation ratio determined separately for each profession, and for specialties within a profession, should be approximately two thirds of such practitioners in the state.

James H. Fleming of the Title XIX Information Center, in a communication describing the HEW regulations speaks of the above quotations as follows:

Payment Under Title XIX

D-5320 lists the requirements for the state plan in regard to payment. State plans must meet these requirements in order to obtain federal approval and funds. You will note two requirements in regard to payment: *payments must be such that those eligible for Title XIX aid can obtain care at least to the extent care is available to the general population of the state; only those providers of service who accept the agreed fee as payment in full can participate in the state plan.* Since the Note at the end of D-5320 refers to a requirement which does not become mandatory until July 1967 (reasonable cost payment for hospital services), requirements will be issued later.

You will note that no limits are established on the state's choice of method or amount of payment; no specific method is either required or prohibited. The primary federal gauge to be applied to "fee structures" is the *result* in terms of availability of care. If fees paid by the state are such that providers of care will not accept Title XIX patients, this is grounds for disapproval of the state plan.

The second requirement prohibits providers from billing for services beyond the amount agreed in the fee structure. This does not, in itself, prohibit the patient's paying part of the cost, but, in such case, the patient's payment plus the Title XIX payment would still have to fall within the limits set by the fee structure. This limitation applies, of course, only to services for which Title XIX is paying.

D-5330 presents criteria for administration. In effect, these amplify the *Requirements*, and are used by the Welfare Administration to determine whether the state plan actually meets the requirements. In this section, Criteria 1 and 2 relate to Requirement 1—if a Title XIX patient must travel *outside* his home community to obtain services available to others *in* that community, the purpose of Requirement 1 (and the statutory requirement that the plan be in effect throughout the state) is not met. The second Criterion

(Continued on page 534)

Annual Meeting Kansas Academy of General Practice

GLENWOOD MANOR HOTEL..... Overland Park, Kansas

THURSDAY, NOVEMBER 3, 1966

- 8:00 A.M. Registration and Business Meeting
John N. Blank, President KAGP, Presiding
- 12:00 Noon Golf and Trap
Brookridge Country Club
Overland Park
- 6:00 P.M. Cocktails
- 7:00 P.M. Dinner—To be followed by business meeting
if necessary.
Election of Officers.

FRIDAY, NOVEMBER 4, 1966

- 8:00 A.M. Registration
- Morning Scientific Symposium—"Cancer Detection in Office Practice"
Moderator: John N. Blank, M.D.
- 9:15 A.M. "The Generalist and Cancer Detection"
to
Maxwell G. Berry, M.D., Kansas City
- 11:45 A.M. "Is IT Cancer, Doctor?"
James M. Baehr, M.D., Wichita
- "Roentgen Diagnosis of Neoplasm on the Ambulatory Patient"
Sidney Rubin, M.D., Kansas City
- (Each Speaker will have 45 minutes for his paper.)
- 12:15 P.M. Luncheon—For Doctors, Wives and Guests
Luncheon Chairman: Sam Zweifel, M.D.,
President-Elect KAGP
- 2:00 P.M. Each of the three speakers with a moderator
to
will rotate from room to room spending one
5:15 P.M. hour with each group.
- 6:15 P.M. Cocktails
- 7:15 P.M. Dinner

We are highly honored this year to have as our dinner speaker the 1966 MISS AMERICA from KANSAS, Miss Debbie Bryant, who will talk on, "My Year as Miss America."

The New Officers of the Kansas Chapter will be installed following dinner by George E. Burket, Jr., M.D., Chairman of the Board of Directors of A.A.G.P. 1965-66.

The evening after dinner entertainment will be furnished by the "Browning Family." 'Nuff said.

Football, University of Nebraska at Lawrence, November 5, 1966.

Committees for 1966-67

New Commission System Creates Five Classifications of Committees

The House of Delegates, on May 5, 1966, amended the by-laws to alter existing committee structure in favor of the commission system. By this action they created five classifications of committees. Appointments to the commissions, made by the president, appear on the following pages.

1. **ELECTED COMMITTEES.** These committees represent official Society functions on a continuing basis. Members are appointed or elected by action of the Council or the House of Delegates.

2. **COMMISSIONS.** The new program combines the activity of some 55 present committees under the direction of five commissions. Each commission is assigned responsibility for committees appropriate to its title. On each commission is a chairman and 18 members. The chairman is appointed annually by the president, but after the first year the members will be appointed for two-year terms, one half to be appointed in any one year.

Each commission is required to meet twice a year. In the fall the meeting will be for the purpose of organization. Members of the commission will be appointed as chairmen for specific projects, such as those previously carried on by committees, and any others they may elect to undertake. The commission member to whom a project is assigned, together with the chairman of the commission and the president, will then select from the membership of the Society those physicians who will comprise the committee. Therefore, instead of a battery of standing committees all specific project assignments will now be given to commissions who will select their own committees.

The second meeting of the commission will be held prior to the annual session for the purpose of reporting all project activity conducted during the year, and at that meeting resolutions to be presented to the House of Delegates will be prepared.

3. **REFERENCE COMMITTEES.** The reference committees for the House of Delegates will be appointed by the speaker and vice speaker of the House of Delegates prior to the annual session. Their names will be published as soon as appointments are made.

4. **ADVISORY COMMITTEES.** In general, advisory committees are appointed by the president upon the recommendation of an organization working closely with the Society. Such committees will serve in a liaison capacity and will report to the House of Delegates upon the activities they conducted throughout the year.

5. **SPECIAL COMMITTEES.** This provision was left for the appointment of necessary committees which do not conveniently fall under commission assignments. At the present time there are no such committees to report.

Elected Committees

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G. F. Gsell, Wichita; R. H. Hill, Meade; M. Robert Knapp, Wichita; L. W. Patzkowsky, Kiowa; J. W. Travis, Topeka.

Also on the council are an equal number of hospital administrators.

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KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in June, 1966 and 1965

<i>Diseases</i>	<i>June</i>			<i>January-June Inclusive</i>		
	1966	1965	<i>5-Year Median 1962-1966</i>	1966	1965	<i>5-Year Median 1962-1966</i>
Amebiasis	—	2	2	4	3	10
Aseptic meningitis	—	—	—	—	3	1
Brucellosis	—	1	—	3	3	3
Diphtheria	—	—	—	—	1	—
Encephalitis, prim., infect.	1	—	1	1	7	7
Encephalitis, post-infect.	—	—	*	—	—	*
Gonorrhea	303	265	265	1468	1242	1398
Hepatitis, infectious	9	22	22	99	303	303
Meningococcal meningitis	2	2	2	9	13	9
Pertussis	2	—	2	8	8	13
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	—	2	2
Salmonellosis	15	17	16	92	130	92
Scarlet fever	2	2	2	77	58	77
Shigellosis	—	15	3	34	74	34
Streptococcal infections	102	114	46	1469	2016	1053
Syphilis	132	62	92	609	458	568
Tinea capitis	1	—	2	26	26	42
Tuberculosis	28	21	27	163	119	141
Tularemia	—	—	—	—	2	4
Typhoid fever	—	—	—	2	—	—

* Statistics for 5-year median not available

KaMPAC*

****Kansas Medical Political Action Committee***

DEAR DOCTOR,

I recently returned from a meeting called for the formation of a political-action-group, not a medical one. There were two facts people did not understand. First, they thought their main problems were with the State Legislature and, second, that nothing needed to be done concerning the Kansas congressmen.

In explaining the first idea, one must simply think where the greatest intrusion into his life originates. Where are the bills initiated such as those wanting to force a man to join a union to earn a living, to force a man to pay medical care for those able to pay their own way, to force an employer to pay double time for all overtime? These are typical of the legislation being passed in *Congress*, not our State Legislature. The danger appears to be more acute in Washington.

In answering the second misunderstanding, I must admit the congressmen elected by Kansas have done very well. However, those elected by other states quite often do not think as we do and what good does it do us if we elect good men from Kansas when they are buried by others from other states? We are fortunate in KaMPAC in that we have a national organization, AMPAC, with which we in Kansas can help elect right-thinking people from other states.

KaMPAC is the place for you.

Very truly yours,

John W. Warren, Jr., M.D.

Chairman, KaMPAC



Personalities—IN KANSAS MEDICINE

The new airport at Goodland was recently named in honor of **Maurice J. Renner**, who has been practicing in that city since 1926. Dr. Renner began flying an airplane in the early years of his practice because the distances to travel often made it difficult to answer emergency calls. His enthusiasm for flying has continued and he was instrumental in securing the original municipal airport for Goodland.

After 60 years of practice in Brown County, Kansas, **William Steinhäuser**, Hiawatha, announced his retirement in July.

The Kansas State Board of Social Welfare announced in August the appointment of **Soon Ock Kim** as director of TB services and acting superintendent of the Norton State Sanatorium and Hospital for the Retarded.

Liam O'Brien has resigned as clinical director of the Osawatomie State Hospital to become acting superintendent of the Missouri State Hospital at St. Joseph, Missouri.

Dale E. Darnell, Olathe, was elected to the Board of Directors of the Olathe Chamber of Commerce in August.

In July, **William G. Rinehart**, Pittsburg, attended a meeting of the National Coroners Association in Miami Beach, Florida. Dr. Rinehart is a member of the national association's advisory board.

Eugene C. McCormick terminated his practice in Wellington in July and has relocated in Goodland.

Dick B. McKee of Pittsburg has been appointed to the Kansas Cystic Fibrosis Advisory Committee.

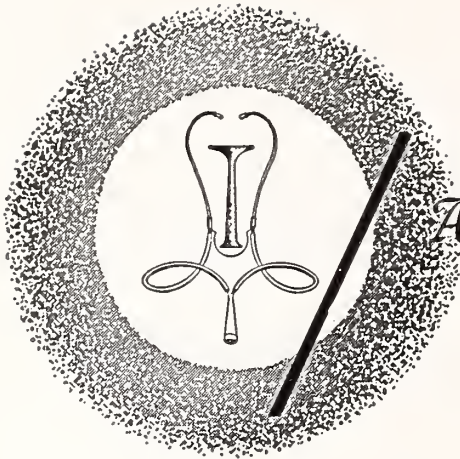
The appointment of **Howard V. Williams**, Topeka, as director of community mental health services was recently announced by **Robert A. Haines**, director of the Division of Institutional Management, State Department of Social Welfare. Dr. Williams assumed his new position the first of September.

Wayne Hird, formerly of Wichita, is now associated with **Byron Walters** and **James Reed** at the Hillcrest Medical Center in Lawrence.

In July, **Ross L. Jewell**, Bird City, left for Vietnam to spend 60 days as a volunteer for the AMA's Volunteer Physicians for Vietnam program. He will work in South Vietnamese hospitals, helping to care for the civilian population.

Emerson Yoder, Denton, has been elected vice chairman of the Brown and Doniphan Counties Mental Health Guidance Center.

Carlyle M. Dunshee recently located in Fort Scott and is practicing at the Newman-Young Clinic there. He fills a vacancy created by the retirement of **Raymond Gench**. Before moving to Fort Scott, Dr. Dunshee was a resident in surgery at St. Francis Hospital in Wichita.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

OCTOBER

- Oct. 20-22 Symposium on Industrial Medicine: *The Doctor's Role in Occupational Health*, St. Petersburg, Florida. For information write: Industrial Medicine, Mound Park Hospital Foundation, Inc., St. Petersburg 33701.
- Oct. 22-27 American Academy of Pediatrics, 35th annual meeting, Palmer House Hotel, Chicago. Write: American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204.

NOVEMBER

- Nov. 1 All physicians are invited to attend a seminar on Diabetes Mellitus sponsored by the Medical Society of Sedgwick County. The seminar will begin at 2:00 p.m. There will be a dinner at 6:00, followed by an evening session beginning at 7:00. Guest speakers include Priscilla White, M.D., Joslin Clinic; Robert L. Jackson, M.D., University of Missouri; and Max Miller, M.D., Western Reserve University. For information and reservations write the Medical Society of Sedgwick County, 1102 South Hillside, Wichita 67211.
- Nov. 3-4 Annual meeting, Kansas Academy of General Practice. Glenwood Manor, Overland Park.
- Nov. 10-13 National Society for Crippled Children and Adults (the Easter Seal Society), Pittsburgh. Write National Society for Crippled Children and Adults . . . the Easter Seal Society, 2023 W. Ogden Avenue, Chicago 60612.
- Nov. 11-14 Lectures and workshops in medical and basic science writing, sponsored by the Northern California chapter, American Medical Writers Association, Pacific Grove, California. For information, con-

- tact: Harley Messinger, M.D., 3029 Benvenue Avenue, Berkeley, California 94705.
- Nov. 19 12th annual Nebraska Mid-State Medical Conference, Holiday Inn, Kearney, Nebraska. Subject: *Female Hormone Therapy: Recent Advances*.
- Nov. 27 8th National Conference on the Medical Aspects of Sports, Las Vegas. Sponsored by the AMA under the auspices of the Committee on the Medical Aspects of Sports. For more information, write: Secretary, Committee on the Medical Aspects of Sports, AMA, 535 N. Dearborn, Chicago 60610.
- Nov. 27-30. American Medical Association, annual clinical convention, Las Vegas.

POSTGRADUATE COURSES

University of Kansas:

- Oct. 20-21 *School Health: Health Education and Health and Illness Behavior*
- Oct. 25-26 *Medicine and Religion*
- Nov. 14-17 *Internal Medicine*

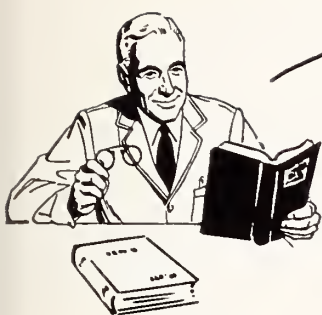
For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Blvd. at 39th St., Kansas City, Kansas 66103.

University of Colorado:

- Oct. 27-29 *Population Dynamics, Genetics Counseling and Birth Control*
- Nov. 2-4 *Fractures and Joint Injuries*

For further information write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4260 East Ninth Avenue, Denver 80220.

(Continued on page 534)



Book REVIEWS

ANATOMY AND SURGICAL TECHNIQUE OF GROIN DISSECTION by John S. Spratt, Jr., William Shieber, and Burl Mays Dillard. C. V. Mosby Company, St. Louis, 1965. 97 pages, illustrated. \$9.75.

This excellent monograph opens with a detailed and quite lucid dissertation on the anatomy of the ileo-inguinal region. The anatomical drawings are quite plain and practical. There is a section on the lymphatics in this area which is probably the most complete that I have seen.

The section on surgical technique of groin dissection is quite complete beginning with the preparation of the patient, a section on preoperative lymph-angiography and the preoperative preparation of the patient. The operative technique is quite detailed and well illustrated so that there is very little question as to how this is being done. The operative repair of the wound is well documented as is the post-operative treatment and the care of complications.

The final chapter on indications for groin dissection bears a great deal of study and is quite complicated.

This book is well worth having in any general surgeon's library and is especially most valuable to anyone contemplating doing a radical groin dissection as an occasional procedure.—*P.M.P.*

NEURO-OPHTHALMOLOGY (Volume II), Symposium of the University of Miami and the Bascom Palmer Eye Institute, edited by J. Lawton Smith. C. V. Mosby Company, St. Louis, 1965. 278 pages, illustrated. \$21.75.

This is a compilation of the second Neuro-Ophthalmological Symposium held January 3 to January

8, 1965. It is a collection of papers by the distinguished panel of ophthalmologists and neurologists. The importance of seronegative ocular and neurosyphilis was discussed. Heredodegenerative retinopathies were classified based on the site of the anatomic involvement. Angiography of the ocular fundus is discussed. Unusual visual field disturbances are presented. A large portion of the volume is devoted to occlusive disease of the carotid and vertebral-basilar arterial systems. The neurology of the orbicularis oculi is discussed from a clinical and anatomic viewpoint. The phakomatoses are also reviewed.—*B.J.A.*

OPHTHALMOLOGY—PRINCIPLES AND CONCEPTS by Frank W. Newell. C. V. Mosby Company, St. Louis, 1965. 491 pages, illustrated. \$12.25.

This is a new elementary textbook in the field of ophthalmology, intended for the student, both undergraduate and graduate. It is not intended to prepare an individual to practice ophthalmology, but rather to provide him with a guide to the recognition of minor and serious eye disease and ocular signs of systemic disease.

The author covers adequately the basic mechanisms of the eye and vision, followed by history taking and the techniques of examination. Part three discusses diseases and injuries of various portions of the eyes and adnexia, concluding with a section on eye manifestations of systemic diseases.

The approach, based on physiopathological principles, is refreshing. The book reads well. It is predicted that it will be widely used in medical school courses in ophthalmology.—*G.F.G.*

RADIOLOGIC DIAGNOSIS IN INFANTS AND CHILDREN by Howard E. Brodens. C. V. Mosby Company, St. Louis, 1965. 503 pages, illustrated. \$26.50.

The author states in his preface that this book was written primarily for "medical students, interns, residents, pediatricians, general radiologists, pathologists, and physicians oriented to pediatrics." With these people in mind, I believe he has done very well in placing emphasis on normal findings and the frequent pediatric diseases. The text reads quite easily and consequently it is not a marathon task to read it entirely. This should allow for interns, residents and pediatricians to get a good over-all perspective and fundamental knowledge of pediatric radiology. General radiologists should also benefit from such a review. It is not, as the author points out, an inclusive reference source on less common diseases. Included in the 503 pages are 757 illustrations and an index, which are of high quality.

At the end of each topic section the author has included a few brief paragraphs entitled "Pitfalls in Diagnosis." I am sure that these will be particularly helpful for those with limited experience in this field. Another noteworthy attribute is the 18-page section dealing with dental development and diseases from a radiologic viewpoint.

I feel the author has accomplished his objective as outlined above and consequently is making a true contribution with this book.—*R.H.B.*

Editorial Comment

(Continued from page 525)

presents a statistical gauge of the "sufficient number" of participating providers of services called for in Requirement 1—approximately two thirds of the members of each profession, and of each specialty group within that profession, in the state.

It should be noted that this is a *statewide* ratio; it does not have to hold for each community in the state, for obvious reasons. For example, in a community with only one physician, his decision as to whether or not to participate could determine approval of the entire state program. On the other hand, Criterion 1 has the effect of requiring at least *some* physician participation in each community, unless non-Title XIX patients also obtain care outside that community in significant numbers.

Announcements

(Continued from page 532)

University of Missouri:

Nov. 4-5 *Annual M-D Day*

Dec. 7-8 *Current Concepts in Arthritis*

For further information write the Office of Continuing Medical Education, University of Missouri Medical Center, Columbia.

Hahnemann Medical College and Hospital:
(Department of Medicine)

Nov. 11 *Coronary Arteriography* (cosponsored with American College of Cardiology)

Dec. 5-7 *Theory and Application of Gas Chromatography in Industry and Medicine*

Dec. 12-14 *17th Hahnemann Symposium: Renal Failure*

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

Oct. 27-29 *Postgraduate Gastroenterology*, American College of Gastroenterology, Bellevue Stratford, Philadelphia. Write to the American College of Gastroenterology, 33 West 60th St., New York, New York 10023.

Oct. 31-
Nov. 12 *Laryngology and Bronchoesophagology*, Department of Otolaryngology of the Illinois Eye and Ear Infirmary and College of Medicine, University of Illinois. The course is limited to 15 physicians. Write the Department of Otolaryngology, College of Medicine of the University of Illinois at the Medical Center, P.O. Box 6998, Chicago 60680.

Nov. 2 *Skin Diseases Common to Man and Animals*, cosponsored by Committee on Cutaneous Health and Cosmetics of the AMA, and the American Animal Hospital Association, El Mirador Hotel, Palm Springs, California. Write: Committee on Cutaneous Health and Cosmetics, AMA, 525 N. Dearborn, Chicago 60610.

Nov. 2-5 *Treatment of Fractures and Other Injuries*, American Academy of Orthopaedic Surgeons, Marriott Motor Hotel, Dallas, Texas.



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Abramson, Harold, editor. Resuscitation of the newborn infant and related emergency procedures. . . . 2d ed. Mosby, 1966.
- American Medical Association. Current procedural terminology. 1st ed. AMA, ©1966.
- Amelar, Richard D. Infertility in men; diagnosis and treatment. F. A. Davis, 1966.
- Bajusz, Eörs. Nutritional aspects of cardiovascular diseases. Lippincott, 1965.
- Barnes, Cyril G. Medical disorders in obstetric practice. 2d ed. F. A. Davis, 1965.
- Beck, Alfred Charles. Beck's obstetrical practice. 8th ed. Williams & Wilkins, 1966.
- Behrman, Samuel J. Fundamentals of gynecology. 2d ed. Oxford University Press, 1966.
- Belle, Herman van. Cholesterol, bile acids, and atherosclerosis. . . . North-Holland Pub. Co., 1965.
- Berge, Balthazar Simon ten. Pregnancy: chemistry and management. Thomas, ©1965.
- Berne, Eric. Principles of group treatment. Oxford, ©1966.
- Birch, Charles Allan. Medicine in Britain; a guide for overseas doctors. Tindall and Cassell, 1966.
- Brest, Albert N., editor. Heart substitutes; mechanical and transplant. Thomas, ©1966.
- Brewer, Thomas H. Metabolic toxemia of late pregnancy. . . . Thomas, 1966.
- Burdette, Walter J., editor. Primary hepatoma. University of Utah Press, 1965.
- Burdette, Walter J., editor. Carcinoma of the alimentary tract. . . . University of Utah Press, 1965.
- Cantoni, Giulio L., editor. Procedures in nucleic acid research. Harper & Row, 1966.
- Carter, Howard Wesley. The aged and chronic disease. . . . Florida. State Board of Health, 1966.
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- Denny-Brown, Derek. The cerebral control of movement. Thomas, 1966.
- Drill, Victor A. Oral contraceptives. McGraw-Hill, ©1966.
- Fearnley, George R. Fibrinolysis. Williams & Wilkins, 1965.
- Ferguson, John Howard, M.D. Blood and body functions. F. A. Davis, ©1965.
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- Gardiner-Hill, Harold. Compendium of emergencies. 2d ed. 1965.
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- Gordon, Robert S., Jr. Protein-losing gastroenteropathy. Year Book Medical Publishers, Inc., 1966.
- Hardaway, Robert Morris. Syndromes of disseminated intravascular coagulation. . . . Thomas, ©1966.
- Harrower, Mary Rachel. Psychodiagnostic testing. . . . Thomas, ©1965.
- Hughes, John Trevor. Pathology of the spinal cord. Year Book Med. Publ., 1966.
- International Congress of Neuropathology. 5th Zurich, 1965. Proceedings. Excerpta Medica Foundation, 1966.
- Jarrett, Arthur. Functional dermatology. Lippincott, 1966.
- Jeffé, Saul. Narcotics—an American plan. Paul S. Eriksson, 1966.
- Krueger, Elizabeth A. The hypodermic injection: a programmed unit. Columbia University, 1966.
- Le Riche, William Harding. The control of infections in hospitals. . . . Thomas, ©1966.
- Liebman, Sumner D., editor. The pediatrician's ophthalmology. . . . Mosby, 1966.



HAL A. BURNETT, M.D.

Dr. Hal A. Burnett, 48, died at his home in Parsons on August 8, 1966.

Dr. Burnett was born at Guthrie, Oklahoma, on October 3, 1917. He received his medical degree from the University of Oklahoma School of Medicine in 1943. After serving in the U. S. Army during World War II, he completed a residency in surgery at the University of Oklahoma hospitals and moved from Oklahoma City to Parsons in June, 1955. In addition to his private practice he had been chief surgeon of the northern division of the Missouri-Kansas-Texas Railroad Employees Hospital Association for 15 years.

Survivors include his wife and four daughters.

IN SUNG KWAK, M.D.

Dr. In Sung Kwak, superintendent of the Norton State Sanatorium, died on August 8, 1966, at the Norton County Hospital. He was 53 years of age.

Dr. Kwak was born November 9, 1912, in Seoul, Korea. He received his degree in medicine from the Severance Medical University in Seoul and did postgraduate work at Kyoto University Medical College in Kyoto, Japan. He came to the United States in 1948 and served a year's residency at a hospital in Denver before coming to Norton. He had been a member of the medical staff at the Norton State Sanatorium since 1949, and was appointed superintendent in January, 1962.

He is survived by his wife and three children.

MAURICE V. LAING, M.D.

Dr. Maurice V. Laing, 60, Kansas City, Kansas, died on August 10, 1966, at a hospital in Anthony, Kansas.

Born at Sechlerville, Wisconsin, on April 30, 1906, he received his medical degree from the University of Kansas School of Medicine in 1935. He continued his surgical training at the University of Pennsylvania School of Medicine and Barnard Free Skin and Cancer Hospital in St. Louis. Dr. Laing was former chief of staff of St. Margaret's Hospital and chief of the hospital's Department of Surgery from 1946 until his retirement in 1963. He was also a member of the staffs of Providence and Bethany Hospitals. He served in the Army medical corps during World War II.

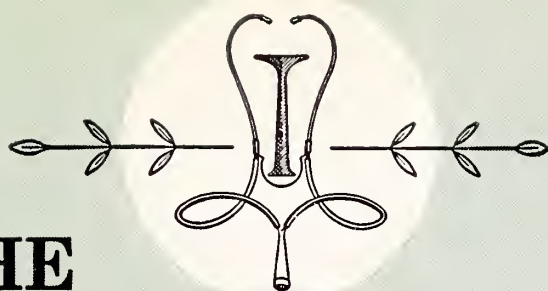
Dr. Laing is survived by his wife and two children.

PHILIP G. MILLER, M.D.

Dr. Philip G. Miller, 61, a retired Anthony physician, died at his home in Anthony on August 31, 1966.

Dr. Miller was born at Wakita, Oklahoma, on January 11, 1905. He was graduated from the University of Kansas School of Medicine in 1931 and practiced medicine in Anthony from 1933 until he retired in 1949 because of ill health. He was a member of several civic, fraternal and medical organizations.

Survivors include his son, mother and father.



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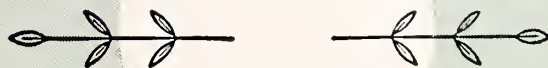
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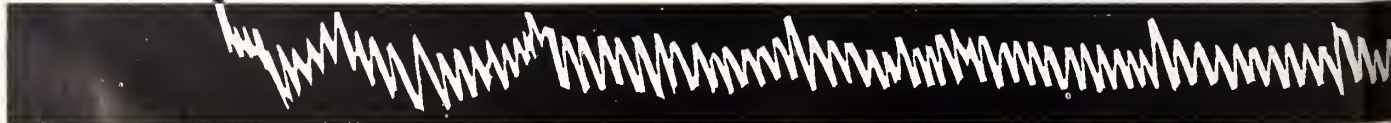
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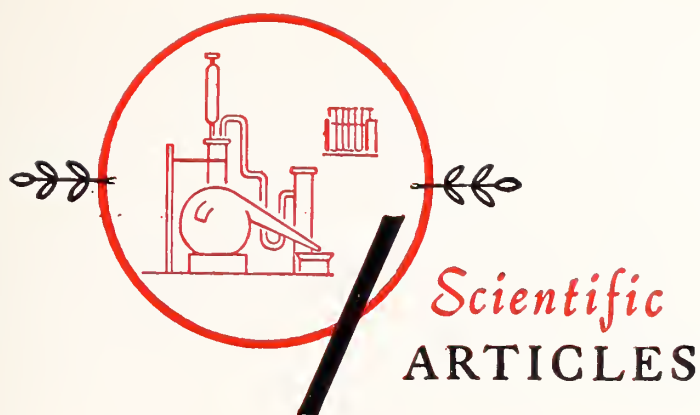
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Diverticulosis and—

—Diverticulitis of the Sigmoid Colon

LEO K. CRUMPACKER, M.D., *Wichita**

I HAVE BEEN IMPRESSED by the increasing number of patients we are seeing with so called "diverticulitis" or its complications.

Diverticulosis usually refers to an asymptomatic condition. Inflammation of diverticula sufficient to give rise to symptoms is usually termed diverticulitis.¹

Diverticulosis is rare before the age of 35. It is estimated five per cent of people 40 years of age have diverticula and frequency increases with age so that at 85 it can be demonstrated in two thirds.²

The tendency for diverticulosis to be initiated in the sigmoid and gradually extend proximally, as well as to become more severe in the sigmoid, has been well documented by Boles and Jordan, who observed 294 cases from 10 to 30 years (average, 15 years). Complications of diverticulitis occurred in 40.2 per cent of their cases and resections were required in 5.4 per cent (1958). Horner found the sigmoid involved in 95 per cent of his cases, with proximal progression roughly proportional to the duration of the disease. He observed that the incidence of diverticulitis was directly proportional to length of follow up and to the extent of diverticulosis. Diverticula rarely occur below the pelvic peritoneal fold.

The etiology of diverticulosis is unknown; however, a number of papers discussing the possible etiology have appeared. These can be reviewed under three headings: (1) Diet, (2) Physiology, and (3) Muscle Abnormality.

A brief discussion of diverticulosis and its etiology, and of complicating diverticulitis, with consideration of indications for, and choice of, operative procedures.

Diet

The relationship of diet to colonic diverticula is uncertain, but treatment commonly includes a low roughage regimen. However, Carlson and Hoelzel carried out studies in rats which indicated that low-residue diets produce diverticulosis while bulky diets prevent the condition. From clinical studies Vague made similar observations. A tribe of West African natives are said to have large colons, due to high-residue diets. They are prone to volvulus but free from diverticulosis.⁷

*Presented at the 1966 meeting of the Kansas Chapter, American College of Physicians, held in Wichita in February.

Physiology

Painter and Truelove,^{8-11, 16} combining the use of three-channel intraluminal pressure recordings with pharmacologic and cineradiographic studies of sigmoidal function, found that the colon is capable of developing very high pressures (90 mm. mercury) within localized segments of the gut. This was due to sharp contraction of the interhastral rings so that the lumen was occluded, actually forming a series of closed globular chambers. Contraction of the muscular wall of the bowel then caused increased pressure. Both prostigmine and morphine increased intraluminal pressures and enhanced segmentation, and these effects were exaggerated in areas of bowel affected with diverticulosis. During this phase, that is during segmentation, diverticula were seen to be maximally distended. Intravenous Pro-Banthine® counteracted these effects. Meperidine (Demerol®) diminished sigmoid pressure and tended to inhibit segmentation.

Painter considers that segmentation with production of focal-increased intracolonic pressure initiates production of diverticula in the haustral segments—usually adjacent to the segmental blood vessels. It is suggested that the pain of "diverticulitis" may sometimes be due to obstruction of the colon by excessive segmentation. He too feels that a bulky diet may inhibit segmentation and help prevent the development of diverticulosis.

Muscle Abnormality in Diverticular Disease

Morson studied 173 surgical specimens removed from patients with a clinical and radiological diagnosis of "diverticulitis." Inflammation was present in 66 per cent, but was absent in one third of the specimens. All the specimens showing inflammation also revealed extensive diverticulosis.

He found abnormality of the muscle in every specimen and noted that this was the earliest, most consistent, and most striking abnormality in the series. The degree of muscular thickening increases progressively beyond the transverse colon.

In four of Morson's cases the muscle abnormality was present without either diverticula or inflammation; he suggested that this may be the earliest change in diverticular disease.

He suggested that diverticular disease is basically a disorder of muscle function, particularly of the sigmoid. Diverticulosis is a complication of the muscle abnormality and inflammation is a complication of the diverticulosis.

The study of Fleischner, *et al.* corroborated Morson's work and suggested that the irritable, spastic colon may be a precursor of diverticulosis. This group reported a case of a 42-year-old female who

had a negative x-ray of the colon in 1949. Symptoms began in 1957 and she was treated until 1962 at which time a resection was done because her symptoms had progressed. She obtained complete relief. In the specimen only a few diverticula were found, and there was no evidence of inflammation or old perforations.

Williams^{14, 15} supported Morson's work and in June, 1965, wrote, "In general appearance and in part of its behavior the colonic diverticular disease superficially resembles a myotatic contracture of striated muscles."

Medical Treatment

Jenkins feels diverticulosis is sufficiently prevalent after the age of 50 to warrant "screening" of a patient every two years.

The majority of cases respond to a medical regimen. It is now suggested that a normal diet, perhaps supplemented with a bulk-forming drug, should be used unless there is some element of obstruction. Emphasis should be placed upon the use of antispasmodic drugs and upon the avoidance of morphine. Demerol® has been shown to be the sedative drug of choice.

Surgical Treatment

Until 1942, surgery for diverticulitis was an emergency procedure to cope with the severe complications of perforation or obstruction and fistula, and because of the inability to differentiate between diverticulitis and cancer. Many different types of procedures were used. In 1942, Smithwick pointed out: (1) An adequate segment of the diseased bowel must be resected if the late results are to be good, and (2) The fecal stream should be diverted, requiring a three-stage procedure, if the mortality is to be kept to a minimum. He felt the period between the establishment of the colostomy and resection should be 3 to 12 months in order to allow the inflammation to subside. The morbidity was high, the economic loss to the patient's family was substantial, and the mortality was about 17 per cent.

In 1942 better anesthetics were being developed, blood was more easily available, and antibiotics were proving their usefulness. Aggressive surgeons^{2, 19, 21-27} began trying a one-stage procedure (primary end-to-end anastomosis) in selected cases. Soon it became evident that resection could be accomplished with a mortality of 1 to 4 per cent, 12 to 14 days of hospitalization, and the patient returned to work in 6 to 8 weeks. This was a revolutionary change. It then became necessary to identify which patient could have a one-stage operation and those patients in whom eventual surgery would most likely be necessary.

Despite the complexities there has been steady progress in selecting patients who will possibly require a colectomy in the future, and for whom the one-stage procedure might be used. Many well recognized surgeons^{21, 24, 26, 27, 29} essentially agree with the following criteria by Rodkey and Welch.

1. Recurrent attacks of bowel inflammation.
2. Persistent tender mass.
3. Narrowing or marked deformity of the sigmoid on x-ray examination.
4. Dysuria associated with diverticulosis.²⁸
5. Functional colonic disturbances with lower abdominal discomfort and diverticulosis.
6. Rapid progression of symptoms from time of onset.
7. Relative youth of patient. (< 50 years)
8. Clinical or x-ray sign equivocal in ruling out carcinoma.

Mortality for primary resection in properly selected cases should be less than 4 per cent. The period of disability is six to eight weeks and long range results are good. The mortality for the serious complications such as perforations, bowel obstruction, or massive hemorrhage will remain high.

The selection of patients for primary resection demands the most careful evaluation—but the decreased morbidity and mortality certainly justify our efforts.

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Mixtures of ammonia-type cleaners and hypochlorite bleaches can free ammonia gas in amounts sufficient to poison the user. Drs. S. Dunn and R. L. Ozere of Nova Scotia, Canada, report a case of ammonia poisoning in a woman who mixed the two substances "to increase the cleaning power." Within a half hour, she developed a marked burning sensation and irritation of her eyes, mouth and nose, associated with continuous, uncontrollable cough and marked flushing of the face, followed by severe shortness of breath, headache and vomiting. She was hospitalized for 24 hours. Four similar cases previously have been reported from the Boston area.—*Canad. Med. Assn. J.*, Feb. 19, p. 104.

Gas-Liquid Chromatography

The Clinical Usefulness of Gas-Liquid Chromatographic Studies of Urinary 17-Ketosteroids

HARVEY A. TRETBAR, M.D., and LEO P. CAWLEY, M.D., Wichita*

Introduction

THE RESOLVING POWER of gas-liquid chromatography (GLC) is such that molecules of identical molecular weight with different spatial configuration may be separated. The main problem of GLC measurement of steroid hormones and their metabolites relates to the fact that these compounds are usually found in low concentration mixed with many similar compounds in high concentration. Initial difficulties in complete separation of certain of the 17-KS were resolved by using NGS liquid phase (neopentyl glycol succinate) and forming TMS ethers of 17-KS (Trimethylsilyl).¹⁻⁴ With these techniques the seven major 17-KS and pregnanediol and pregnanetriol could be separated on a single column.⁵ To date GLC of 17-KS has been performed on approximately 300 individuals at Wesley Medical Center.

Material and Methods

Twenty-four hour urine was collected in pre-weighed containers as previously reported⁶ with boric acid as preservative. The GLC analysis of urinary 17-KS is accomplished as previously described.^{7,8}

When urine was available for GLC assay, an aliquot was removed for 17-KS and was assayed for Zimmerman chromagen and 17-ketogenic steroids by the method of Sobel *et al.*⁹ Standard dexamethasone suppression tests and intravenous ACTH stimulation tests were accomplished in some patients. Urines of various disease states were available for study. Those selected for this report include three patients with Cushing's disease, three patients suggesting the Stein-Leventhal syndrome, two patients with unexplained hirsutism, two patients with exogenous obesity, and three female and two male individuals with hypogonadism.

* From the Wesley Medical Research Foundation, the Department of Medicine and the Endocrinology Laboratories, Wesley Medical Center, Wichita, Kansas. Supported in part by Grant from Kansas Division of American Cancer Society.

Presented at the 1966 meeting of the Kansas Chapter, American College of Physicians held in Wichita in February.

The separation of 17-KS by gas-liquid chromatography (GLC) may not have a practical application in the routine clinical laboratory. It may be most helpful in problems of hypertrichosis and masculinization. Improved double isotope dilution studies of secretion and production of individual hormones may demonstrate the exact patho-physiology of a number of poorly understood disease processes in the near future. Correlation of these detailed studies with GLC excretion patterns may well establish certain diagnostic steroid profiles.

Results

Table 1 is from a previous study¹⁰ and lists the mean values of individual 17-KS found in 20 males and 20 females and the total of GLC values, Zimmerman 17-KS values and other information. Table 2 lists the values of urinary steroids obtained from three patients with Cushing's syndrome. BO had suppression studies and surgery revealed bilateral adrenal hyperplasia. LM is one of our patients with proven "Ectopic-ACTH" Cushing's syndrome (bronchogenic carcinoma).^{7a, 7b} JH had a benign adrenocortical adenoma. This individual responded to exogenous ACTH stimulation. The 17-KGS and Zimmerman chromagens did not suppress with a standard dexamethasone suppression test; however, the GLC 17-KS decreased from 11.93 to 6.30 mgs. per 24 hours. A significant feature demonstrated by these patients is the relationship of the 11-desoxy-17-KS to 11-oxy-17-KS. Normally the ratio for females averages 62/38 per cent and in the male 76/24 per cent. The ratios were reversed in these individuals, and ACTH stimulation tended to change the ratio to normal by an increase of 11-desoxy-17-KS in JH.

Table 3 lists values of studies of unexplained hirsutism, obesity and three individuals with pathologic changes and a clinical syndrome suggesting the Stein-Levinthal syndrome. The relationship of the 11-

TABLE 1
MEAN AND RANGE OF GLC FRACTIONS* OR URINARY 17-KS IN 20 HEALTHY MALES AND FEMALES

Sex	Pregnanes			11-Desoxy-17-KS				11-Oxy-17-KS				Total 17-KS		
	-DIOL	-TRIOL	A	E	D	KA	KE	HA	HE	GLC	ZIM			
Males														
Mean	0.53	1.13	4.4	5.0	1.1	0.5	1.0	1.2	0.6	13.6	17.0			
Range	0.13-1.7	0.2-2.21	(0.6-7.9)	(1.3-11.4)	(0.2-5.7)	(0-1.7)	(0.4-1.4)	(0.2-3.7)	(0 - 0.9)	(3.5-21.1)	(4.4-29)			
Females														
Mean	0.50	0.64	2.0	1.7	0.5	0.4	0.7	0.9	0.6	6.7	7.7			
Range	0.2-0.97	0.2-1.51	(0.6-5.0)	(0.6-4.0)	(0 - 1.4)	(0-1.6)	(0.3-1.1)	(0.3-2.0)	(0.2-1.8)	(4.4-11.3)	(3.6-15.1)			

* mg/100 ml.

desoxy-17-KS to the 11-oxy-17-KS in unexplained hirsutism approached "normal" values. The two individuals with obesity show the two extremes encountered. LL demonstrated 11-oxy fractions compatible with Cushing's syndrome and the values for the desoxy-17-KS are some of the highest we have measured. The other obese individual demonstrates completely normal assays. In general the desoxy-oxy ratio of the S-L syndrome resembled male values. Following wedge resection of the ovaries CM developed a ratio of 68/32 per cent.

Table 4 shows the results of studies of patients with hypogonadism. The patients with hypovarianism were, respectively, postoperative, spontaneous, Turner's syndrome and prepuberty. Note the varied ratios of the 11-desoxy to 11-oxy-17-KS. The male patients include a castrate from a Kansas mental institution and hypopituitarism. The low recovery of 17-KS by gas-liquid chromatography as opposed to Zimmerman chromagens is interesting as is the reversal of the usual desoxy-oxy ratio in the castrate.

Discussion

The complexity of studying the metabolism of androgenic steroids is immense. In addition to testosterone (some 30 times as androgenic as any of the other hormones) several others are secreted: androstenedione, dehydroepiandrosterone, dehydroepiandrosterone-sulfate, androstenediol and androstenediol monosulfate. Other compounds are secreted and then converted to "androgens," such as 17-hydroxyprogesterone (being converted to androstenedione), cortisol (converted to 11-β-hydroxyandrostenedione) and 17-α-hydroxypregnenolone (to dehydroepiandrosterone). It has also now been established that several androgens are intraconvertible in peripheral tissues. Dehydroepiandrosterone and testosterone may be converted to androstenedione and this may be converted to testosterone. Thus, the secretion of one substance may result in the circulation of another with potencies greater or less than the original substance.¹¹

The urinary 17-KS originate from the gonads and adrenal cortex. The components of the 11-desoxy-17-KS include androsterone, etiocholanolone, dehydroepiandrosterone; the 11-oxy-17-KS include 11-ketoandrosterone (11-KA), 11-ketoetiocholanolone (11-KE), 11-hydroxyandrosterone (11-HA) and 11-hydroxyetiocholanolone (11-HE). Normally, and almost invariably, the 11-beta-hydroxylation enzyme is found only in the adrenal cortex. Some exceptions have been reported, included virilizing interstitial cell testicular tumors.¹²⁻¹⁴ Also, on occasion androstenedione may contribute to these 11-oxygenated-17-KS.¹¹ The fractions may vary considerably between individuals, but seem to be fairly constant in the same patient under controlled circumstances. In an early

TABLE 2
CUSHING'S SYNDROME

No.	Age	Sex	17-KGS	17-KS ZIM	17-KS GLC	Triol	Diol	A	E	D	KA	KE	HA	HE	11-O 17-KS	11- DO 17-KS
BO-A	40	F	31	13.8	10.85	1.75	1.18	1.31	2.27	0	.17	1.38	3.89	1.80	7.27	3.58
BO-B			1.8	9.1	7.75	.7	.69	.59	1.41	.08	.44	1.16	3.06	1.01	5.67	2.08
LM	69	F	45.2	31.4	14.45	.25	.61	.51	2.86	0	.14	2.24	2.93	5.77	11.08	3.37
JH-A	32	M	51.8	29.2	12.22	.38	.1	1.70	2.08	.43	4.44	1.08	.34	2.15	8.01	4.21
JH-B			163	64.9	16.13	33.9	.51	3.44	3.59	0	5.0	1.19	.48	2.43	9.1	7.03
JH-C			54.7	35.9	11.93	36.1	.35	1.4	2.08	.24	3.81	1.21	.77	2.42	8.21	3.72
JH-D			51.9	37	6.30	24.6	.35	.78	.88	0	1.69	.98	0	1.97	4.64	1.66

TABLE 3
STEIN LEVENTHAL

No.	Age	Sex	17-KGS	17-KS ZIM	17-KS GLC	Triol	Diol	A	E	D	KA	KE	HA	HE	11-O 17-KS	11- DO 17-KS
B'OY	25	F	16.1	12.7	10.61	1.15	1.0	3.17	3.83	1.29	.39	.35	1.24	.34	2.32	8.29
CJ	18	F	6.1	8.7	7.34	.94	.59	2.86	1.32	1.38	.16	.51	.96	.15	1.78	5.56
CM-A	12	F	11.4	9.2	8.01	.9	1.02	3.92	1.74	.23	.29	.68	.87	.19	2.03	5.98
CM-B				10.5	6.99	.6	1.46	2.90	1.65	.19	.35	.63	.67	.60	2.25	4.74

UNEXPLAINED HIRSUTISM

No.	Age	Sex	17-KGS	17-KS ZIM	17-KS GLC	Triol	Diol	A	E	D	KA	KE	HA	HE	11-O 17-KS	11- DO 17-KS
L	21	F	8.5	7.7	5.46	.2	.19	1.28	1.88	.35	0	.64	.75	.56	1.95	3.51
NB	25	F	13.7	11.2	9.89	2.57	3.74	3.74	2.52	.42	.67	.9	1.17	.47	3.21	6.68

OBESITY

No.	Age	Sex	17-KGS	17-KS ZIM	17-KS GLC	Triol	Diol	A	E	D	KA	KE	HA	HE	11-O 17-KS	11- DO 17-KS
JC	15	F	6.3	4.1	4.37	.43	.97	.58	1.27	.46	.2	.63	.67	.56	2.06	2.31
LL	21	F	21.9	19.4	17.49	1.74	1.05	4.78	4.05	3.3	.56	1.39	2.15	1.26	5.36	12.13

TABLE 4
HYPOGONADISM

No.	Age	Sex	17-KS KGS	17-KS ZIM	17-KS GLC	Triol	Diol	A	E	D	KA	KE	HA	HE	11-O 17-KS	11- DO 17-KS
S	38	F	10.5	7.8	6.83	.75	.89	1.22	1.36	.95	.35	1.07	.89	.99	3.3	3.53
SA	35	F	7.7	5.1	3.64	.29	.37	1.22	.77	.14	.21	.19	.72	.39	1.51	2.13
B	15	F	10.1	8.0	4.06	.33	.37	1.04	.75	.2	.14	.75	.54	.54	2.07	1.99
H	5	F		2.8	.6	.05	.09	.04	.13	0	.07	.18	.18	0	.43	.17
M	43	M		16.1	1.28	.03	.21	.09	.14	.19	.37	.25	.07	.17	.86	.42
J	45	M	8.0	3.8	3.79	0.94	1.33	1.38	1.18	0	.07	.38	.63	.15	1.23	2.56

normal value study by Jailer and associates¹⁵ the 11-oxy-17-KS ranged from 9 to 33 per cent of the total in females and 19 to 40 per cent in males. As might be anticipated, these are the major compounds elevated with ACTH stimulation, both relative and total. They constitute the major portion of the 17-KS excreted prior to puberty and do not decrease appreciably with old age. The variation in reported "normal" values in the literature is apparently due to the different methods employed.¹⁶

The 11-desoxy-17-KS evolve from both adrenal and gonadal precursors. The normal value for dehydroepiandrosterone is slightly greater in male individuals. There is a slight sex difference in the androsterone/etiocholanolone ratio but it is virtually 1:1 (male = 1.17, female = 1.01).

The study of Cushing's syndrome has been very interesting. One of the first studies of the individual 17-KS was accomplished in 1958 by Jailer, Vande Wiele, Christy and Lieberman.¹⁵ All of their patients had an increase in the 11-OH-17-KS, the 11-desoxy-17-KS being normal in six of seven patients. The hydroxyandrosterone was elevated in five of seven patients, and the etiocholanolone was markedly increased (average four times that of androsterone). The total values of androsterone were normal in all patients. In studies of hirsute women, Gallagher¹⁷ and Perloff¹⁸ noted an increase in relative and absolute values for the 11-desoxy-17-KS. Gallagher reported a normal desoxy-oxy ratio to be 3.3 and that in many hirsute women, this increased to 5.1. The response to ACTH stimulation was less in the hirsute women, particularly in the desoxy fraction and what increase there was, was due solely to an increase in etiocholanolone. The abnormal ratios were said to "normalize" following steroid feedings. Perloff re-

ported the 11-desoxy-17-KS in normal females to be less than 6.1 mg. per 24 hours. In all instances at least two times the normal level was found in patients with Stein-Leventhal syndrome; and with severe hirsutism, this amount was said to be even higher. He reported that wedge resection of the ovaries improved menstrual function in virtually all instances but had little or no effect on hirsutism, and a varied effect on the ketosteroids. Both studies reported the interesting occurrence of persistent "normal" 17-KS ratios and absolute values following transient steroid feedings. More recently, Greenblatt¹⁹ has reported several "patterns" of abnormal 17-KS fractions in clinically similar patients with Stein-Leventhal syndrome. Studies to confirm these findings have not as yet appeared.

In the few studies accomplished on patients with arrhenoblastomas, there has been primarily an increase in testosterone or androstenedione^{12, 13} which should appear in the urine in these instances, primarily as etiocholanolone or androsterone. In only one third of the cases was there a high enough level to cause an increase in total 17-KS. No increase in urinary DHA or in total 11-oxy-17-KS has been observed.¹¹ Virtually all patients with carcinoma of the adrenal cortex have shown a profound increase in DHA, and it has represented more than 50 per cent of the total 17-KS excretion in numerous instances.¹¹

The 17-KS fractionation studies on adrenogenital syndrome due to congenital adrenal hyperplasia have been of interest.²⁰ The C21 (hydroxylase) enzyme deficiency has resulted in a relative increase in the 11-oxy-17-KS (similar to ACTH therapy). The C11 block (11-B-hydroxylase) associated with hypertension, has, in fact, shown a decrease 11-oxy fraction with the major 17-KS being etiocholanolone (the

major metabolite of compound S). The carbon 3-B-dehydrogenase deficiency (rare) has resulted in high levels of DHA. Some reports have failed to demonstrate such sharply demarcated steroid patterns.

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NIGHT DRIVING

With the onset of the fall season, the days continue to get shorter and the nights longer.

Later dawns and earlier dusks bring an added problem to auto drivers.

Safety experts report that driving at night is more than twice as dangerous as driving during the day, says *Today's Health*, the magazine of the American Medical Association. Last year there were ten persons killed for every 100 million vehicle miles traveled in darkness—four dead for every 100 million miles traveled in daylight.

Here are ten vital night-driving tips from *Today's Health* to help you increase your chances of avoiding night accidents.

- Slow down after dark. Even the legal speed limit may be too fast for safety on a dark night.
- Check your lights. Keep your headlights as clean as your windshield. Be sure your taillights work.
- Use your headlights at dusk and when visibility is poor, regardless of the clock time. Tilt your lights to avoid blinding the approaching driver.
- If the auto ahead of you suddenly starts to weave, making you suspect that the driver's drowsy, flick your lights quickly several times. Head for the right hand lane and slow down.
- Drunken drivers. Don't be one. Don't ride with one.
- Don't wear sunglasses when driving at night.
- In winter, turn down the heater so that the interior of the car is cool. It will help keep you awake. Open the windows occasionally for a blast of cold air.
- Don't follow too closely. For every ten miles per hour of speed allow at least one and a half car lengths between you and the car ahead.
- If your car breaks down, get as far off the road as possible. Place warning flares 100 yards down the road. If you have only a flashlight, signal by pointing the light toward the stalled car.
- Concentrate on paying attention at all times. This, of course, is also important in daylight. In darkness, it's even more important, because of the reduced field of vision.—AMA Health and Safety Tips.

Myocardial Infarction

Heart Proteins, Including Enzymes in Serum Following Myocardial Infarction

MARVIN E. BLOUGH, M.D., ERNEST W. CROW, M.D., and
LEO P. CAWLEY, M.D., *Wichita**

IN THE MAJORITY OF CASES of myocardial infarction, the diagnosis is readily made from the clinical and electrocardiographic findings. However, in the patient whose chest pain is unusual and whose ECG is non-diagnostic, accurate diagnosis becomes difficult. In this instance the serial serum enzyme changes may be suggestive of myocardial damage. Unfortunately none of the serum enzymes or isoenzymes tests are organ specific for heart muscle.⁸

If a protein that is unique for heart muscle could be demonstrated in the serum of patients with recent infarction, the presence of this protein might serve as a basis for a more specific test for myocardial necrosis. The possibility that such a protein is released into the circulation gains support from the demonstration of circulating anti-heart antibodies in some patients with post-myocardial infarction syndromes.⁵ In this study, patients suspected of having myocardial infarction were followed by serum enzyme changes and an attempt was made to demonstrate a circulating heart protein.

Material and Methods

Eighteen patients who were admitted with the diagnosis of probable acute myocardial infarction formed the basis of the study. As soon as possible after admission, blood was drawn for determination of SGOT, CPK, total LDH and LDH isoenzymes. A sample of serum was frozen for later immunodiffusion and immunoelectrophoresis. A second specimen was drawn the following morning for repeat testing. Nine of the patients had serial enzyme determinations for a five-day period.

The SGOT was measured by the colorimetric method of Reitman and Frankel. The reagents were in a kit (Dade Reagents, Inc., Miami, Florida). Normal values are 9-33 units. A spectrophotometric

method developed by Tanzer and Gilvary was used for the CPK determination. Normal values are 0-1 international units. Total LDH was performed by the method of Wacker *et al* with Determinatubes (Worthington Enzyme Co.). The LDH isoenzymes

Determination of serum enzyme changes following acute myocardial infarction suggests the possibility of clinical usefulness of the tests.

were separated by electrophoresis on agar-gel by the technique of Wright, Cawley and Eberhardt.¹² The usual distribution of the isoenzymes by per cent by this method are LDH₁ 33 (\pm 5), LDH₂ 47 (\pm 3), LDH₃ 16 (\pm 4), LDH₄ 3 (\pm 1), and LDH₅ 2 (\pm 1) (*Figure 1, upper*).

The search for a circulating heart protein by immunoelectrophoresis and immunodiffusion required the production of an antibody against the human heart. To produce such an antibody two rabbits were injected with extract from freshly frozen human heart and Freund's adjuvant weekly for six weeks. A booster injection was given at two and a half weeks. Ten days later the serum was harvested for use as rabbit anti-human heart serum. The serum was tested by immunodiffusion and immunoelectrophoresis on agar-gel by methods previously described^{1, 2} against the original heart extract, normal human serum and serum from cases of acute myocardial infarction.

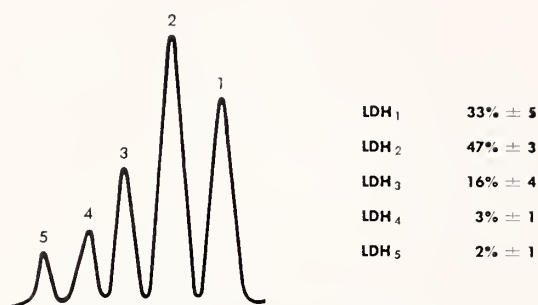
Results

Of the original 18 cases, 13 were suitable for inclusion in this preliminary report. The SGOT was elevated on the first serum in eight of 13 (*Table 1*). All were elevated by the time the second specimen was drawn. The CPK was reported over one unit in six of 13. One case failed to manifest a rise over one unit. Eight of 13 cases had elevated LDH levels on admission and 12 of 13 were abnormal on the second specimen. A normal LDH zymogram and a

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Presented at the 1966 meeting of the Kansas Chapter, American College of Physicians held in Wichita in February.

NORMAL LDH ZYMOGRAM



TYPICAL LDH ZYMOGRAM IN INFARCTION

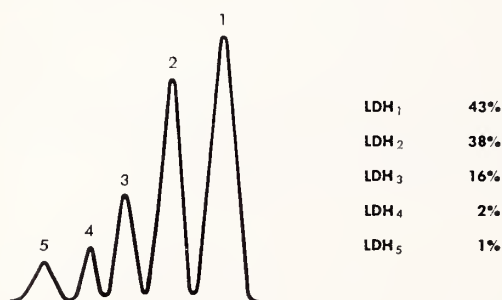


Figure 1. Drawing of scan of normal LDH zymogram and per cent activity of each LDH isoenzyme (upper) and of a typical LDH zymogram in myocardial infarction with per cent distribution of activity of each isoenzyme (lower). LDH₅ often is elevated if congestive failure is associated with myocardial infarction.

typical LDH zymogram in myocardial infarction is shown in Figure 1. The LDH isoenzyme distributions were abnormal in six cases on the acute specimens and in all 13 on the second determination. The zymograms showed the typical elevation of LDH₁ with reversal of the LDH₁/LDH₂ ratio from less than one to one or greater. This type change has been reported to occur in myocardial infarction.^{3, 4, 6, 8, 11} Similar changes in the zymogram occur with hemolyzed serum, some hemolytic anemias and infarction of the renal cortex. LDH₅ is often elevated in myocardial infarction, presumably on the basis of congestive failure which causes anoxic changes in the liver and release of LDH₅.^{9, 12}

One patient was followed for five days and his results are shown in Table 2. In this patient only the LDH isoenzymes showed consistent abnormality even though total LDH was not significantly elevated. The other enzymes were within normal range except for SGOT which was elevated only on the second day

TABLE 1
SERUM ENZYME CHANGES IN 13 PATIENTS
WITH RECENT MYOCARDIAL INFARCTION

Test	1st Serum	2nd Serum
SGOT	8	13
CPK	6	12*
LDH	8	12†
LDH Iso	6	13

* 1 case did not rise.

† 1 case became only borderline.

and then returned to normal. The EKG findings were abnormal throughout the five days.

The rabbit anti-human heart serum was tested against the original immunizing heart extract for precipitating antibodies by immunodiffusion and immunoelectrophoresis. Both techniques demonstrated two precipitin bands. When immunoelectrophoresis was applied using normal human serum and the anti-heart serum, at least five bands of protein precipitation occurred. Serums from cases in the study were then substituted for the normal human serum. Immunoprecipitin bands were identical to those found in normal human serum and no additional bands could be identified.

Discussion

The serum enzyme changes appeared promptly and nearly all enzyme tests were elevated by the time the second specimen was drawn. On the LDH zymograms the LDH₁/LDH₂ ratio was reversed in all cases on the second specimen. This change was readily evident on the one case which had only borderline elevation of the total LDH (Table 2). The LDH₁/LDH₂ ratio reversal persisted on all the serial determinations. Other studies reported indicate that the change in the LDH isoenzyme pattern may persist longer than elevations of the total LDH.^{4, 6, 8, 11}

TABLE 2
SERIAL SERUM ENZYME CHANGES IN
PATIENTS WITH MYOCARDIAL
INFARCTION

Test	Normal Values	Days				
		1	2	3	4	5
SGOT	9-33 units	34	62	30	21	24
CPK	0-1 unit	0	0	0	0.84	0
LDH	25-100 units	66	101	100	77	99
LDH ₁	28-38%	27	40	38	43	44
LDH ₂	44-50%	37	35	37	35	36

The precipitin bands demonstrated between the rabbit anti-human heart serum and the serum from controls and infarction cases indicated the presence of antibodies to ordinary serum proteins. Apparently the rabbit manufactured antibodies to the trace amounts of serum proteins that were present in the immunizing heart extract. Using the rabbit as a source of antibody, no antigen-antibody precipitation specific for heart protein could be demonstrated by the technique used.

Summary

SGOT, CPK, LDH and LDH isoenzymes were studied serially in 13 patients with myocardial infarction. The shift in the ratio of LDH₁ and to LDH₂ appears to persist longer after myocardial damage than any of the other serum enzymes. In this study the CPK was not as specific as SGOT, total LDH or LDH isoenzymes. An attempt was made to detect other heart proteins in the serum by immunodiffusion and immunoelectrophoresis. An antiserum made in the rabbit against fresh human heart tissue did not disclose any heart specific immunoprecipitin bands.

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TOOTH REPLANTED

If Johnny knocks out a tooth while racing his skateboard or playing in a neighborhood playground, the loss isn't necessarily permanent if he saves it. Perhaps it can be replanted.

Dr. Hugo A. Owens, a Portsmouth, Va., dentist reports that a boy whom he treated in 1955 by replacing a completely severed tooth has good, normal dental health. The 13-year-old boy was playing in a school yard when he was struck in the mouth and the upper left central incisor was knocked completely out. His teacher salvaged the tooth and rushed him to the dentist's office for emergency treatment.

Since there was no fracture of the bone nor damage to any other tooth, Dr. Owens decided to attempt simple replantation without splinting. Five days later the boy said he felt well in every respect. When he returned for x-rays 11 days after the accident, no abnormal changes could be seen and the tooth was remarkably tight in the socket. After a month the tissue surrounding the tooth was normal and healthy, the tooth was well anchored and all soreness had disappeared.

"A review of the literature confirms the practicality of replantation and, with current techniques and new drugs, those teeth which once might have been considered hopeless are now routinely treated and saved," Dr. Owens concluded.—*J. National Med. Assn.*, May, p. 170.

DECLINE IN NEW MEDICINES

National introductions of new medicines by American drug companies declined sharply during the first six months of 1966 to the lowest point in 25 years, according to Paul de Haen, Inc., Drug Information Services.

Thirty-nine new products were introduced, compared with 55 for the first half of 1965 and 154 for the same period five years ago, de Haen reported.

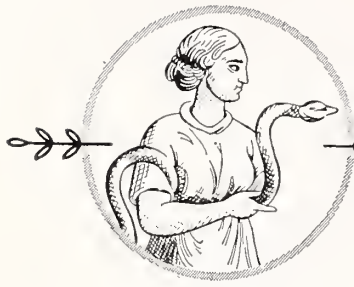
New drug products consist of single chemical entities, duplicates of existing products and new combinations of existing products.

The sharpest decline was in the number of single new chemicals. Only four were approved for marketing by the U. S. Food and Drug Administration during the first half of this year, compared with 14 in the same period a year ago and 24 in the same period five years ago, de Haen noted.

The approved single new chemicals are: a local anesthetic, an antileukemic, a topical antibiotic and an ingredient in an anovulatory product.

During the first half of this year 26 single chemical entities originating in the United States were marketed in France, Germany, Great Britain and Italy. Four of these new medicines are not available to

(Continued on page 564)



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., Kansas City, Kansas

(Continued from October)

When the Administration Building was first planned, a large ward accommodating approximately 25 patients was set apart as a children's ward. For some time, Dr. Sudler had wished to reorganize the department of pediatrics, so when I suggested the name of Dr. Frank C. Neff to him, he immediately called up Dr. Neff and asked him to come over to the hospital for a talk. Meanwhile Dr. Sudler made extensive inquiries in regard to Dr. Neff and found that he was one of the leading pediatricians of the Southwest, stood high in his profession, had contributed extensively to pediatric literature, and had a national reputation. Dr. Sudler told me that he was prepared to offer the chair to Dr. Neff.

Neff breezed in one morning, asked to see Dr. Sudler and me, and, after a few minutes' conversation with Dr. Sudler, went up to the new children's ward, walked about, and inspected it with evident approval. "I accept the offer," he said decisively. We took the elevator down, he said, "Good bye," and walked out to his car. The whole transaction had taken about 15 minutes.

Frank Neff (*Figure 34*) was one of the first specialists in children's diseases in Greater Kansas City.

This is the seventh of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

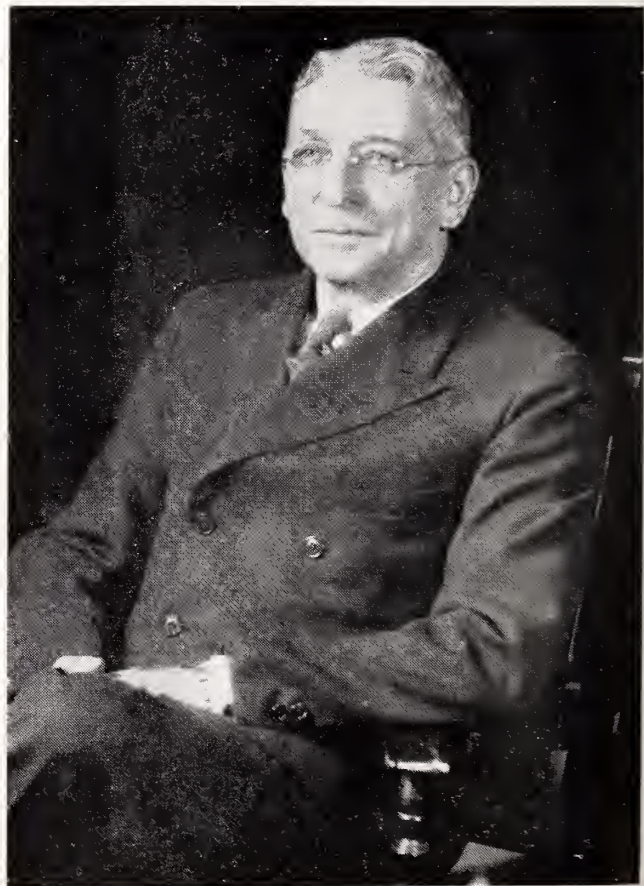


Figure 34. Dr. Frank C. Neff

After graduation from the University Medical College in Kansas City, Missouri, he took an internship in New York and, after a few years of general practice, went to Berlin where he worked in Czerny's clinic. Czerny was a pediatrician of worldwide reputation, while at that time, there was scarcely a children's clinic in the United States worthy of the name. Soon after his return to Kansas City, Neff had a very large pediatric practice but was not satisfied with practice alone. A hard student, an omnivorous reader, he soon began to contribute articles and monographs to the literature of pediatrics. He was the first pediatrician in Greater Kansas City to be elected to membership in the American Pediatric Society, the meetings of which he never missed. Indeed, medical society meetings had an irresistible attraction for Frank. He told me once that he had spent more than three months of that year attending medical meetings. One great urge, however, had not been satisfied. Sudler satisfied it when he gave Neff an opportunity to teach.

Frank Neff was a man of sterling character, an excellent teacher, and universally liked. He had very strong convictions, particularly about unethical medical practices, and his obvious kindness of heart, sympathy and sincerity made him a great favorite. One form of temptation he could never resist—passing a fruit or vegetable stand on the highway without buying. When Frank returned from a drive to Lawrence, the tonneau of his car looked as if he were delivering groceries to his customers.

In the latter part of 1934, a prominent attorney

called on Dr. Neff and informed him that a client had authorized him to give the Medical School the sum of \$60,000 towards the erection of a children's hospital with one proviso—the name of the donor must not be made public. It was well this provision was attached, for, as soon as the newspapers reported the gift, Dr. Neff's mail was deluged with letters from all sorts and conditions of men, describing their need for money and asking for the name and address of the anonymous benefactor. Additional funds were obtained from government grants, university funds, and individual gifts; the Children's Hospital was erected the following year at a cost of approximately \$100,000. Frank visited a number of outstanding children's clinics in the county before the plans were drawn, engaged a private firm of architects in Cincinnati as consultants, and watched the construction of the new hospital brick by brick (*Figure 35*).

With the years, Neff spent more and more time in the Children's Hospital (*Figure 36*) with his staff and students, and less and less time in his office in the Plaza Medical Building. He told me one day that, in summarizing the way he had spent his time during the year, he found that three fourths of it had been spent in teaching at the hospital, and one fourth in the gainful practice of pediatrics. He continued this schedule until his retirement in 1945. During all these years, Neff was part time, his salary from the Medical School too small to mention aloud or, even, to record. It probably did not pay for the gasoline and repairs of his car.



Figure 35. Children's Hospital in course of construction



Figure 36. Ward B and Children's Hospital

Shortly after we had moved to the new site, Mr. Abraham Flexner of the Rockefeller Foundation paid us a visit. Mr. Flexner, the author of two classics on medical education, had not visited our institution since the publication of his *Medical Education in the United States and Canada* in 1910. In that report, to be frank, he had not praised our institution but had said that the state of Kansas needed a good medical school and the school at Rosedale was the obvious one to develop.

At that time, Mr. Flexner, who was in charge of the department of medical education in the Rockefeller Foundation, had tremendous power and influence in the field of medical education. While he was not exactly the czar of medical education, he certainly was its grand vizier. At a nod from him, a weak, struggling school would bound forward; if he turned thumbs down, it usually slipped off into oblivion. He did have vast power—but, looking back over the years, I think he used it wisely and well.

Standing on the steps of new administration building, Mr. Flexner made his first remark, "Well, I've seen medical schools divided into two campuses, but never before into three." He continued, "As you know, we do not favor divided schools and will not support their building projects. Your school, to receive financial support from the Rockefeller Foundation, should be united in either Lawrence or Kansas City. This building and this excellent site are the strongest arguments I see against uniting the school in Lawrence."

Mr. Flexner stayed a day with us, talking over various matters, and invited the Dean to call on him in New York to discuss the plans for the future. But his final remark on divided schools was the same as his initial statement.

Some time later, Dr. Sudler, accompanied by the Chancellor and the new Governor, visited Mr.

Flexner in New York and presented to him the plans and hopes for future developments. Mr. Flexner expressed again his disapproval of divided schools but seemed interested in our school. He remarked that the Rockefeller Foundation has assisted our neighbors, Iowa and Colorado, and, under certain conditions, might also assist Kansas. Dr. Sudler came home much encouraged over the future prospects of the Medical School and transmitted this feeling to all of us. But once again history repeated itself, and our rosy hopes were dashed to the ground.

Many of the friends of the Medical School, and a not inconsiderable number of its faculty, were stunned on picking up the *Kansas City Times* for July 23, 1924, to read the headlines, "Dr. Sudler Is Removed, Kansas State Board Ousts Dean at Bell Memorial," under which was a news dispatch from Topeka dated July 22. The *Lawrence Journal-World* of the same date carried the headlines, "Dean Sudler and Shea out at K. U. Board of Administration Acts Over Dr. Lindley's Protest." The *Lawrence Journal-World* continued:

Based in one case on charges which the state board of administration admits would "be hard to substantiate" and in the other on no charges at all, two summary dismissals were made at the University of Kansas by the state board yesterday. Dr. Mervin T. Sudler, dean of the school of medicine, was removed from his position. John Shea, superintendent of buildings and grounds, was dismissed by A. B. Carney, head of the state board.

The *Journal-World* continued:

Asked for specific charges against the retiring dean, Carney said, "Well, they would be hard to substantiate, but Dr. Sudler has stated his willingness to retire." . . . Roger Williams, member of the state board, said in Lawrence this morning that it was "practically neces-

sary" for the board to remove Dr. Sudler. Williams charged the dean with lack of administrative ability.

It may be more than a coincidence that two members of the board defended the dismissal of Dr. Sudler, while the third member of the board, Mr. William Lambertson, was discreetly silent or, at least, was not quoted by the press.

The term, "Board of Administration," sounds strange to the present faculty, so perhaps a little clarification is necessary. The University of Kansas had had Regents to direct its affairs for nearly 50 years when, on July 1, 1913, a State Board of Administration took their place. Unlike the Regents, who devoted only part of their time to the University without compensation, the three members of the Board of Administration were full-time, paid a presumably adequate salary, and were in control of all the educational institutions. The Governor, as subsequent court decisions later ruled, had the right to appoint or dismiss members at will. It had been pointed out by many educators that the plan could be dangerous since, in effect, it placed the Governor in charge of the educational institutions. If he wished to appoint or remove certain professors or initiate certain policies, he could do so by appointing pliant board members or by removing any obstreperous ones who refused to do his bidding. These warnings were not sufficiently heeded to transmit them into legislative action. The events of 1924 provided the necessary stimulus for legislative action.

The attacks on the Governor and the board continued to make news for several weeks or even months. The press, in general, criticized the action, but, in a speech at Lawrence, the Governor, according to the *Lawrence Journal-World* for July 31, 1924, said that, when

Chancellor Lindley refused to remove Dean Sudler and Shea, he himself decided to "umpire in the question without the advice of the Chancellor, the *Lawrence Journal-World*, or *The Kansas City Star*." . . . Governor Davis said in closing that he alone would take the responsibility for the removal of Shea and Sudler and that he was ready to take any blame that people might place on his shoulders. He asserted that he had removed no man from office for partisan reasons alone.

This statement from the Governor would seem to support the old criticism of the Board of Administration as constituted by law, that through it the Governor could hire or fire any person in an educational institution at his pleasure.

Meanwhile, the Medical School had no head, and all was in confusion. Many felt, unconsciously quoting the first aphorism of Hippocrates, that experience is fallacious and judgment difficult. Those who knew Sudler's years of devoted service to the institution, his complete sincerity, honesty and lack of guile,

the way he steadfastly stuck to the old ship through storm and stress and almost complete shipwreck felt that, in seeing him unceremoniously tossed overboard just as calm waters appeared ahead, one could no longer say, "It can't happen here." The medical faculty had a special meeting on July 28, 1924, when the following letter was drafted by Logan Clendening:

Dear Dr. Sudler:

On the occasion of your resignation as Dean of the Department of Medicine of the University of Kansas, we, the undersigned members of the faculty in medicine, wish to express our sincere and deep appreciation of the value of your long period of service.

Since your acceptance of the position 14 years ago, in spite of difficulties and discouragements that were neither few nor slight, you have maintained the vision of a great medical school, the worthy part of a great university; and it is through your whole-hearted and disinterested devotion and labor, that the foundation of such an institution has been laid. The work will go on. There will arise here a school worthy in every respect to teach all who wish to learn, the principles of the great humanitarian science of the practice of medicine. We believe that you have left the impress of your personality upon that work for all time in the future. We are not unmindful of the many sacrifices which this has cost you, and we take this opportunity not only to express our faith in the integrity of the work which has been done, but our high regard and deep sense of affection for the man who has done it.

This letter was signed by the following doctors in the order named: Drs. Major, Curran, Neff, Dwyer, Hall, Clendening, Jones, Mella, McDermott, Skoog, Davis, Boughnou, McKee, Vanorden, Gilliland, Stookey, Hashinger, Bell, Black, Engel, Anderson, Cunningham, Wahl, Murphy, Guffey, Campbell, Trimble, Welker, Rumsey, Pickens, J. L. Myers, W. A. Myers, Dennie, Gilles, Hertzler, Bohan, Singleton, Irland, Roberts, Haden, Orr, Cowherd, Ockerblad and Helwig.

The term, "resignation," was employed because of some uncertainty regarding the situation. The *Kansas City Post* on August 8, 1924, carried the headline, "Sudler Not Ousted, Chancellor of University of Kansas states Medical Head Resigned." Dr. Sudler stated after this story was circulated, "Just why this statement was made is not understood. I had requested to be relieved of administrative duties in order to devote more time to research and teaching, but I have never at any time resigned from the institution, either to the Chancellor or to the board. Furthermore, Governor Davis and Mr. Carney both stated emphatically that I had been dismissed." The original draft of this resolution was sent to Dr. Sudler, who was on vacation in Maryland, where he had been when dismissed and where he remained until Autumn when he returned to his home in Lawrence.

The statement, "The work will go on," was certainly the feeling of the entire faculty of the Medical School. Meanwhile, newspapers and private sources said that there was a search for a new dean to head the Medical School. The *Kansas City Journal* for August 2, 1924, carried the headline, "Medic Dean Must Be Kansan," and the news item stated, "A resolution asking that the new dean of the Kansas State Medical College at Rosedale, Kansas, be a Kansan was adopted last night at a special meeting of the Wyandotte County Medical Society."

During these hectic days, I received a telephone call from Dr. George M. Gray, informing me that the Governor had asked him to be the new dean and that he was calling me to ask my advice. I felt much flattered that a man of Dr. Gray's stature and reputation should ask my advice, but I told him frankly that I would hesitate to advise anyone to be dean of a medical school and that, as the appointment was coming from the Governor and not from the Chancellor, I was afraid that he might not find such a post a bed of roses.

Several nights later, Dr. Gray again called me on the telephone. He said that the night before, when driving from Lawrence to Kansas City, he had narrowly escaped a serious accident and that, since that experience, he had thought a great deal about the uncertainty of life. "I am already along in years," he added, "and I don't want to spend my last years in strife and turmoil. I have declined the Governor's offer." That happened 30 years ago, and Dr. Gray is still with us, hale and hearty and enjoying the esteem and affection of his colleagues.

The Chancellor had flattered me on several occasions by saying that I would make a good dean. I answered that I had seen too much of the trials and tribulations of a dean, that I wished to spend my days practicing medicine and teaching medical students, and that, in addition, I did not have the training or the temperament to succeed in such a position.

Finally, one day the Governor asked me to call on him. I did so and was received in a very friendly and courteous manner. The Governor wasted no time but came directly to the point. He told me that he had received some very favorable reports regarding me and asked me if I would accept an appointment as dean. I told him that, although I did not wish the appointment and had never sought it, I did have a deep sense of obligation to the School and to certain persons, so I would consider the offer under certain conditions.

"What conditions?" he asked.

"The first condition is that Dr. Sudler should be re-instated as professor of surgery."

"That," answered the Governor with finality, "is absolutely impossible."

This ended the interview.

The following week a telegram from the Chancellor to Dr. Sudler at Westover, Maryland, stated (in part), "Last night Wahl appointed acting (dean) by recommendation, pending search for permanent dean, who will come with free hand. I have urged your continuance on faculty until appointment of permanent dean, but Governor and board unwilling."

Dr. Sudler described the above events in a pamphlet, which was circulated among his friends. He closed his account with these words:

After 18 years my connection with the institution was terminated during my absence from the state. . . . This event means that every position in all of the state educational institutions of Kansas is under the direct control of the Governor, and whether partisan politics plays a part or not depends entirely upon the type of man occupying this position. It means that no position is secure and that there can be no continuation of policy. This naturally cannot lead to strong or efficient institutions.

Dr. Wahl was appointed Acting Dean on a temporary basis. He served as Dean for 24 years!

Wahl's first two appointments were very popular. Dr. T. G. Orr was appointed professor of surgery, and Dr. Sam Roberts (*Figure 37*), professor of

(Continued on page 555)



Figure 37. Dr. Sam E. Roberts



Sacral Tumor

Edited by **ROBERT LOVETT, M.D., Kansas City, Kansas**

Dr. Stanley Friesen (Moderator): Dr. Clough, will you present the case, please?

Dr. Charles Clough (Resident in Neurosurgery): This 63-year-old woman was well until 1962 when she had the onset of low back and pelvic pain which tended to radiate to the rectum. It was not aggravated by coughing but was aggravated by mechanical movement. Her local physician found evidence of a retroperitoneal mass and the mass was resected via an abdominal approach. Subsequently, she had two additional operations, each from the anterior approach and additional tumor tissue was resected each time. Before each of these operations she again had symptoms of sacral pain that radiated to the rectum and the mass was palpable by rectal examination.

Dr. Friesen: Was this mass within the lumen of the rectum or was it outside the rectum and what was its size?

Dr. Clough: The mass was extra-luminal and had approximate dimensions of 5×7 cm.

Physical examination at the time of this admission revealed three abdominal scars from her previous operations. On rectal examination, the mass was readily palpated between the wall of the rectum and the sacrum and it was fixed to the anterior surface of the sacrum. This mass was very firm, non-tender and non-ballotable. Neurological examination was normal.

Dr. Friesen: May we see the x-rays, please?

Dr. Richard Morrison (Resident in Radiology): A barium enema done a few days before her most recent (fourth) operation reveals an obvious space-occupying lesion between the rectum and sacrum. The myelogram shows the spinal canal ending at a normal level at S_2 —rather bluntly instead of having the usual tapered appearance. Other films taken of this lesion

reveal no more than a suggestion of sclerosis of bone of the lower sacrum.

Student: What is the significance of the myelogram in this case?

Dr. Clough: We wondered if the tumor had extended into the spinal canal. Although there was no objective sign of neurologic involvement, during the past six months before the present admission she had nocturnal incontinence of urine and constipation.

Dr. Friesen: Dr. Williamson, will you tell us about the operation?

Dr. William Williamson (Neurosurgeon): First, let me say that the first two operations on this lady were performed by a general surgeon using the anterior approach. Rather than attempt to resect this a third time, he felt that she might profit by seeing a neurosurgeon and so he sent this patient to me. We discussed this case and there was considerable disagreement among us as to whether the tumor should be removed from the anterior approach or the posterior approach. We felt that since the patient's tumor was in her pelvis and since there were no neurologic abnormalities, the tumor would be best removed by a general surgeon using the anterior approach. The patient's third operation was performed here in March, 1965, by a general surgeon who felt, after exploring the patient's pelvis, that the tumor was inoperable so he instead just biopsied it. This biopsy histologically established the diagnosis of chordoma. We subsequently saw the patient in March, 1966, and again the same question confronted us, whether or not the tumor would best be removed anteriorly or posteriorly. Dr. Clough felt that the posterior approach was best—and this was attempted through the combined efforts

of the neurosurgery and general surgery staff. Dr. Clough, will you tell us about the operation?

Dr. Clough: Well, insofar as I know, Dr. MacCarty of the Mayo Clinic first described this operation and has the largest personal experience. The problem here is that the overall survival is eight to ten years and therefore five-year survival figures are not too meaningful. In his initial report published in 1952,¹ Dr. MacCarty described his procedure in ten patients with sacral chordoma and this series was subsequently enlarged to 18 cases, with follow-up periods ranging from one to twelve years, in 1961.² Seven of these 18 patients have survived without evidence of recurrence of the tumor. Five are alive and have recurrent tumor and six have died. Two of the six deaths were due to unrelated causes. Prior to this, it had been observed that recurrence after surgical excision of chordomas was a constant feature.³ The operation that Dr. MacCarty described is performed by a team consisting of a neurosurgeon, an orthopedic surgeon and a general surgeon and utilizes the posterior approach. It consists of removal of the tumor, lower three sacral segments of vertebrae and the coccyx. In most cases, the upper three sacral nerves and the pudendal nerves can be preserved unilaterally and preferably bilaterally. If these structures are preserved unilaterally, normal vesical and rectal function can be realized. We were able to preserve the pudendal nerve on the right and had to sacrifice the pudendal nerve on the left because it was completely encompassed by the tumor. The discouraging part about this operation is that the tumor had eroded through the sacrum and had extended laterally to involve the sciatic nerve on the left side. We felt that we were not justified in sacrificing the left sciatic nerve so we shaved tumor off the surface of this structure, but I seriously doubt that we removed it all. We feel that we have completely removed all the tumor from the pelvis and if it recurs again, we will perhaps do an en bloc resection of a segment of the sciatic nerve. I do believe that with the proper team approach many of these tumors can be completely resected.

Dr. Friesen: Is the patient incontinent?

Dr. Clough: The patient is still on Foley catheter drainage.

Dr. Friesen: Dr. Mantz, will you present the pathology, please?

Dr. Frank Mantz (Pathologist): This patient's case is highly typical of this particular lesion. The gross specimen consisted of 360 gms. of irregular fragments of tissue, most of which was tumor composed of white, soft, rubbery nodules measuring 0.5-1.0 cm. in diameter. Characteristically, these lesions are lobular and well circumscribed and have glistening, white, mucoid cut surfaces. I can assure you, however, chordomas are not all as readily diagnosed as this one was.

Microscopically, this presacral neoplasm is composed of masses of cells which are divided in an orderly manner into lobules by fibrous septa. These lobules are sometimes further subdivided by tiny wisps of fibrous tissue in which a few inflammatory cells can be found. This lesion is of moderate cellularity and presents a foamy appearance (*Figure 1*). The cells have variable and large nuclei, but much more

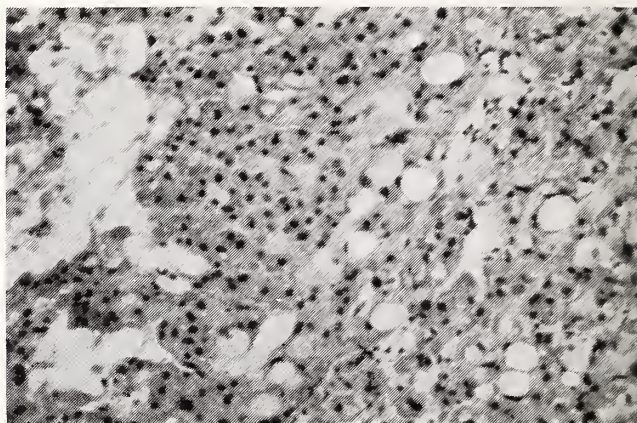


Figure 1. Low power photograph of chordoma showing bubbly appearance.

striking is the vacuolated appearance of their cytoplasm (*Figure 2*). Some cells, presumably those that are older, have rather large vacuoles and in some areas it appears that the vacuoles have coalesced to form larger cyst-like spaces which gives the tumor the characteristic low power bubbly appearance. More specifically, these cells are referred to as physaliferous cells and they are characteristically found in this tumor. After prolonged search, I was able to find one mitotic figure. These are lesions that are characteristically indolent and it is usually quite difficult to show mitotic activity. The presence or absence of mitoses does not alter the prognosis. These tumors are slowly and persistently locally aggressive, but only rarely metastasize to distant sites. In other areas there is fairly abundant extracellular mucoid material; this is true connective tissue mucin and it stains appropriately. This mucoid material sometimes has a coagulated appearance and also contains individual and small clusters of cells which is reminiscent of chondroid tissue. Mucicarmine stains, however, show it to be truly mucin and not chondroid material.

This lesion is generally about twice as common in males as in females, but is certainly not unknown to the distaff side. It generally occurs in patients in older age groups with a peak incidence in the sixth decade. This lesion is characteristically localized and confined to the axial skeleton. These tumors occur in locations ranging from the area of the clivus in the posterior wall of the sella turcica to points inferior all along the spinal canal. Approximately 35 per cent of these tumors present intracranially, in the peripituitary

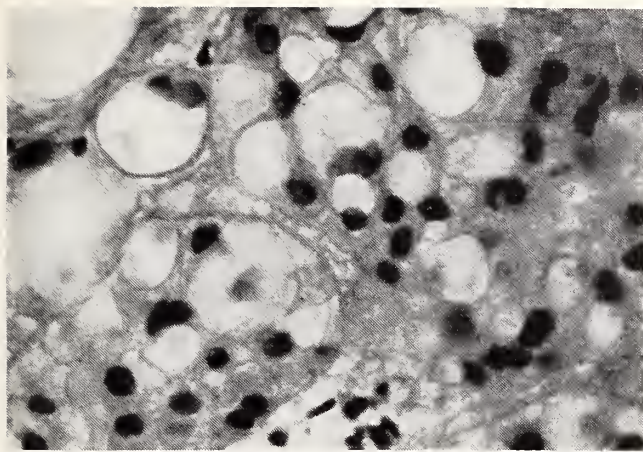


Figure 2. Oil immersion photograph of chordoma showing physaliferous cells.

tary area, and about 55 per cent of them are located in the lumbo-sacral area. The remaining 10 per cent are distributed all along the spine, particularly in the cervical region. With the exception of the intracranial lesions, these tumors frequently present anteriorly in the retroperitoneal space.

This lesion is derived from the remnants of the notochord, the provisional axial skeleton of the developing embryo. This is a collection of cells forming a rod extending from the cephalic to the caudal end located between the neural groove and the developing gut. This rod of cells becomes engulfed by a dense mantle of mesenchymal tissue, from which eventually evolves the basi-sphenoid and basi-occipital areas of the base of the skull and the entire vertebral column. This notochordal tissue subsequently comes to lie in the center of the intervertebral disc where we see the characteristic physaliferous cells, which remain in the nucleus pulposus of the intervertebral disc. The chordomas, which are tumors of notochord tissue, do not actually arise in the nucleus pulposus itself. Many studies of these tumors, begun by Muller in 1848 and subsequently by many others, have suggested that the majority of these lesions either begin within the adjacent bone or in the periosteum from dislocated rests of notochordal tissue, which remain behind after this tissue assumes its normal position within the intervertebral discs. These lesions only infrequently directly involve the intervertebral discs and also they rarely extend posteriorly into the spinal canal, the usual direction of extension being anteriorly into the retroperitoneal region. Occasionally these lesions have very unusual and diagnostically baffling clinical presentations. I can remember one case in which the mass presented in the cervix, the greatest bulk in the posterior fornix, as a soft lobular mass which was mistaken as carcinoma of the cervix. Another one I recall arose in the basi-sphenoid region, presented in the posterior nasopharynx, and was believed to be a polypoid tumor of the

nasal mucosa. This particular tumor was entirely extracranial. Still another tumor I recall arose in the cervical region and presented as a massive unilateral enlargement in the neck, clinically simulating carcinoma of the thyroid gland.

The gross appearance of these lesions is somewhat treacherous in that they appear to be quite well circumscribed. They have the unfortunate tendency to extend into surrounding tissues in strand-like fashion, so that the total excision is very difficult to accomplish. The ultimate prognosis is exceedingly bad. The life expectancy of a patient with an intracranial chordoma is about two years. The life expectancy of patients with extracranial chordomas is in the area of 10 to 15 years. These lesions are capable of distant metastases, but this rarely happens. Those that have metastasized have all arisen in the sacral area, growing into the lumens of some of the numerous veins in this region and subsequently breaking off as small emboli and appearing as metastases in the lungs.

In summary, I believe this case very nicely illustrates the behavior and appearances of this characteristic, but very unusual tumor.

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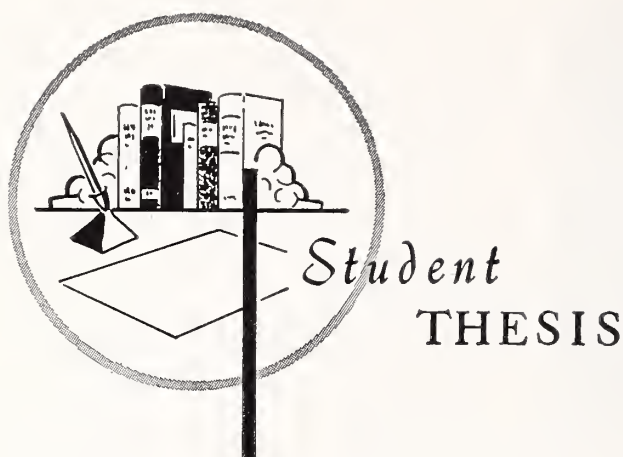
Medical History

(Continued from page 552)

otorhinolaryngology. Both of these men headed their departments with great distinction until their elevation to the rank of professor emeritus.

One of Wahl's first moves after being appointed Acting Dean was to request the Governor and the Board of Administration to appoint him superintendent of the hospital without salary. This move surprised many of the faculty, but, in later years, Dr. Wahl explained his motives. The Governor had many political supporters who wanted to be appointed superintendent of the hospital, which they visualized as a choice political plum. As soon as they learned that the position carried no salary with it, they lost all interest in the appointment. The leading candidate for the position was pacified by being appointed superintendent of buildings and grounds. He was a pleasant, agreeable fellow, who never interfered in any way with the management of the institution. His duties were minimal and consisted largely in signing the payroll.

(To Be Continued Next Month)



Endotoxin Shock

RICHARD W. SPANN, M.D., *Rochester, Minnesota**

Introduction

THE TERM "SHOCK" describes a clinical entity characterized by extreme pallor; weakness; prostration; cold, clammy skin; hypotension; and a fast, thready pulse. There are many causative factors of shock, but the most recently described is that due to an endotoxin.

An endotoxin is a toxic substance formed by bacteria, especially the enteric bacilli and other gram-negative bacteria, that is found within the cell. It is a lipid-polysaccharide polypeptide complex and occurs as a natural constituent of the cell wall. No secretions are included in the endotoxins.

Viruses, rickettsiae, and a variety of gram-positive bacteria may produce this clinical picture, but gram-negative bacteria are by far the most common etiological agent. The most frequent causative organism of endotoxic shock is *E. Coli*. The organism showing the highest mortality is *Proteus*.

The mortality from bacteremia is variously reported, but seems to be around 20 per cent. Bacteremia and shock combined have a mortality of 80 per cent. Most patients die within two to three days. The later fatalities usually occur at about one week and are usually due to renal failure. These patients die despite the return to a normotensive state. In the survivors, the effects of the toxin last six to seven days, thus illustrating the devastating nature of the

endotoxin. The reduction in blood volume may be further augmented by a hemolytic crisis with fall of the hematocrit by 20 or more units, as seen in infection with some *Clostridia* organisms.

Clinical Situations

Gram-negative bacteria are normal inhabitants of the intestinal tract, and are present in the genitourinary (GU) system as well. Manipulations and procedures in the GU system produce the majority of these cases of bacteremic shock. The gynecologist and urologist face a higher incidence of postoperative infection than does the general surgeon. With these infections, there is a correspondingly higher incidence of bacteremia and occasionally subsequent shock. Septic shock is also seen in septic abortions and in the postpartum period.

The sensitivity of the system to the effect of endotoxin increases with advancing age. Except for septic abortion, endotoxin shock is unusual before the age of forty. The higher incidence in the older age group reflects the greater number of urological procedures done in the sixties and seventies. The pregnant patient, for some unknown reason, shows a greater susceptibility to endotoxin shock. The occurrence is with either infected abortion or premature rupture of the membranes and resultant chorioamnionitis and placentitis. The latter usually occurs in the third trimester of pregnancy. Sometimes during labor or the postpartum period, the patient can develop shock out of all proportion to any blood loss. The over-all incidence of septic shock is approximately the same in both men and women.

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Spann is now a resident in Internal Medicine at the Mayo Clinic, Rochester.

Experimental Studies on Endotoxin

Several interesting experiments have been performed to try to identify the nature of this toxin. It has been discovered that dogs can be made resistant to usually lethal doses of endotoxin by the repeated intravenous injection of graduated doses of this substance. Such dogs will then be resistant to lethal hemorrhagic or endotoxin shock. When such resistant dogs were subjected to one of these lethal types of shock, the characteristic changes in plasma volume, hematocrit, and hemoglobin were either mild or did not occur, and almost all of the dogs survived. At sacrifice, the small bowel was normal or showed only minimal changes. The effects of the shock on mesenteric blood flow and resistance were therefore ameliorated.

Jacob Fine reports that a circulating toxin has been demonstrated in hemorrhagic shock, in tourniquet shock, in shock following release of a transient occlusion of the celiac axis or superior mesenteric artery, as well as in shock caused by gram-negative bacteria. Its presence is revealed by injecting the blood into those animals that have lost their defense potential. In such vulnerable recipients, the toxin gives rise to endotoxin shock and is lethal. This toxin has been isolated from blood and shown to have the biological properties of endotoxin. In his experiments, the absorption from the intestine was shown by its absence from the blood stream of animals in which the coliform flora had been suppressed by orally administered nonabsorbable antibiotics. Evidence that the endotoxin was absorbed from the intestine of the normal and the shocked animal was obtained by (1) comparative assay of portal and hepatic vein blood for endotoxin in normal and shocked animals; (2) assay of the blood by the indirect immunofluorescent test, and by the man agglutination inhibition reaction for endotoxin fed by lavage; and by observing the lethal effect of orally administered endotoxin to injured animals that would have otherwise survived.

Dr. Fine uses the above data to support his conclusion that the absorption of endotoxin from the gut, as such, or in the form of invading bacteria, is inevitable. Endotoxemia will therefore develop when splanchnic vasoconstriction has continued long enough to injure the endotoxin detoxifying power of the reticuloendothelial system of the liver and spleen. The undetoxified endotoxin aggravates the vasoconstriction caused by the hypovolemia, and so accelerates the collapse of the systemic circulation. This explains the hitherto puzzling fact that the longer hemorrhagic shock lasts the less amenable it becomes to transfusion, and why endotoxin-resistant animals can tolerate hemorrhagic hypotension much longer than ordinary animals.

Endotoxin appears to act in one of two ways on

the vasculature. One of these is direct involvement of the vessel wall or neurogenic receptors in these walls. The other postulated mechanism is that of a direct effect on the vasodilatory center in the medulla.

Reilly, Delauney, Tardieu, and others of the Paris school have long regarded these endotoxins as neurotoxins. They have reported peripheral vascular collapse as a result of exposing nerve structures directly to these compounds. The most telling evidence that endotoxins can be lethal by virtue of their neurotoxic property is the observation of Penner and Bernheim that only a small fraction of a dose that is lethal when given intravenously is lethal if injected into a cerebral ventricle. This proves that the toxin causes the effects by direct action on the centers rather than by acting on the vessels.

Experimental Studies and Clinical Observations

There is considerable controversy concerning the effects of endotoxin in man. Much of the work has been done in animals, and it is felt that the results are not applicable to man. Following intravenous (IV) administration of the endotoxin in animals, immediate death is usually produced with postmortem findings of disseminated intravascular coagulation and renal thrombi. In man, congestive splenomegaly, hepatomegaly, and intestinal mucosal hemorrhages and ulcerations have been observed.

Death seems to be produced by poor flow through the liver and intestine. There is general agreement that flow through the splanchnic circulation is far below normal in all forms of shock. Oxygen concentration in hepatic venous blood has been found to vary from zero to five volume per cent in severe hemorrhagic shock. This is sufficient to indicate the extent of the oxygen debt, and the consequent damage to function of the tissues in this region. The significance of such damage has been assessed in hemorrhagic shock in which perfusion of the portal vein or superior mesenteric artery with a normal minute volume flow of fully oxygenated arterial blood by cross-perfusion with a healthy donor (while the remainder of the organism remains in a state of shock) prevents death and the usual gross postmortem stigmata of irreversible shock. Because a similar cross-perfusion applied to other regions of the circulation does not prevent death, the splanchnic area is the site of the lesion. It is obvious that return of normal flow through the splanchnic area should be a primary objective, providing it can be achieved before irreversible damage has occurred.

In the dog, there is early trapping of blood in the liver, later in the intestine. If one collects all venous return and measures it before returning the blood to the dog's right atrium, it is immediately apparent that the cause of shock is not cardiac failure, but a

failure of venous return. This is not so in the human patient on the basis of this experience, and is not surprising because the reaction in the dog is at least partly due to a massive release of histamine which has not been demonstrated in man. Further, the constriction of hepatic vein sphincters in the dog caused by histamine release cannot occur in man because the sphincters do not exist in man.

Dogs with chronic Eck fistulas (end-to-side portacaval shunts) given endotoxin show identical intestinal changes to those previously described (extensive hemorrhagic necrosis of the mucosa), indicating that hepatic venous vasoconstriction, while taking place shortly after the injection of endotoxin, is not the cause of the intestinal changes or the cause of death.

The pathological changes consist of elements of both vasoconstriction and vasodilatation. The vasoconstrictive effect might well be explained by the presence of endogenous catecholamines. The thrombosis and partial dissolution of vessels seen in pathological studies is the same as that produced by the local action of norepinephrine.

Hemodynamic and Other Effects

There have been a number of studies showing the changes in serotonin, norepinephrine, epinephrine, and polypeptide substances during endotoxin shock. It is felt that the changes in the ratios or even in the presence of some of these substances may account for some of the pathological changes observed.

Rosenberg noted a 28-fold increase in epinephrine and an 8-fold increase in norepinephrine concentration five minutes after the onset of endotoxin shock in dogs. In hemorrhagic shock there was a 70-fold increase in epinephrine and a 12-fold increase in norepinephrine concentration 30 minutes after the onset of hemorrhage. These concentrations of epinephrine in hemorrhagic shock are higher than those measured by Poole and Watts during the intravenous infusion of epinephrine at rates sufficient to cause irreversible shock. This suggests that the animal is inherently capable of producing adequate endogenous vasoconstrictors in response to stress, and that exogenous vasoconstrictors are superfluous and perhaps harmful. These catecholamines rise immediately after endotoxin administration. Epinephrine soon returns to control levels but norepinephrine remains slightly elevated.

During lethal endotoxin shock, serum serotonin levels fall to 22 per cent of their control value and remain at this general level throughout the remainder of the experiment. Platelets do not decrease to the same degree. These pronounced changes in serum serotonin concentration do not occur in hemorrhagic shock. Haddy showed that serotonin has a vasodilatory effect on small vessels and a vasocon-

strictor effect on large vessels. In situations where these vessels are maximally constricted, the net effect is vasodilatation. These findings might explain an altered response of blood vessels to epinephrine and norepinephrine on the basis of a serotonin deficiency.

Kobold, Lucas and Thal report that in addition to norepinephrine and epinephrine being present in the blood stream of an individual with endotoxin shock, there are found histamine and a polypeptide-like substance. They studied and treated eight patients in shock with this elevation of polypeptide substance. TKI, a proteolytic enzyme inhibitor, was used in the treatment with favorable results.

Conflicting results have been reported as to the possibility of blood volume deficits in this condition. Grable, Williams, and Fine showed that with serial determinations by both the single tracer method, as well as the double tracer method, no terminal blood volume deficit was revealed. Measuring the plasma volume loss in control animals, other investigators report an average loss of 35 per cent prior to death.

The administration of endotoxin is often followed by a fall in fibrinogen level. One response of this may be an increase in fibrinolytic activity which in the presence of a low blood fibrinogen can cause coagulation defects.

The Shwartzman phenomenon appears to play a part in this condition. Disseminated thrombi and bilateral renal cortical necrosis have been found in patients dying of septic shock. In pregnancy, both the animal and the human appear to have an increased sensitivity to a single dose of endotoxin.

Complications

The complications of a state of septic shock are many and varied. Other than the effects of shock itself, changes result in various organs throughout the body. Most important of these is cortical necrosis, and less frequently, acute tubular necrosis. The findings in the endocrine system are either in the adrenal or the adenohypophysis and are due to excessive fibrin deposition. These are relatively rare, but may result in panhypopituitarism or adrenal failure. A clinical entity called the Waterhouse-Friderichsen syndrome may occur with resultant adrenal hemorrhage and hemorrhage into the cardia of the stomach. Curling's ulcer occurs in a significant proportion of cases which is usually characterized by hematemesis or melena. For the most part, little can be done about these complications and one should not be distracted from the prompt treatment of the shock.

Laboratory Studies

The laboratory findings are usually consistent in any given stage of the shock.

During the first few hours of shock a leukopenia prevails, but after six to eight hours a leukocytosis becomes dominant. This usually is the range of 20,000 to 40,000 wbc/mm. Several factors may be responsible for this rise. The first of these is the infection itself which calls out a predominantly (90 per cent) polymorphonuclear response. A less commonly considered etiological factor of the leukocytosis is liver necrosis. Although it is not thought that liver necrosis occurs so soon in the stages of the disease, such a leukocytosis may be observed in cases of profound shock not due to sepsis with this given time interval. The hematocrit usually remains stable. Urinalysis is variable depending upon the location of the abscess or infection, but usually will be of high specific gravity with proteinuria. This proteinuria is probably due to the same mechanism as found in congestive heart failure.

The acid-base balance found in the picture of shock is profoundly disturbed and can represent a complex problem in management. The diminished perfusion of tissues with nutrients and inadequate destruction of metabolites result in an increased amount of products, the most important of which is lactic acid. This acid results in metabolic acidosis. The buffer system of blood is chiefly through the CO_2 bicarbonate system, and it is through this means that the lactic acid is handled. With the utilization of this system, CO_2 combining power as low as 5 or 6 mEq/liter has been found. It is important to realize that inadequate respiratory function due to either lung or chest injuries, or retained secretions from the bronchial tree may result in respiratory acidosis. If this occurs, a person may be in profound metabolic acidosis and still have a normal CO_2 . In this case arterial pH and CO_2 measurements should be taken.

Other laboratory findings may include electrocardiographic abnormalities, predominantly T-wave changes. ST segment elevation has also been noted. These changes are usually transitory despite their ominous appearance in shock. They are due to diminished perfusion of the myocardium secondary to shock and the depression of the myocardium secondary to acidosis. Elevations of the SGOT have been noted to occur within six to eight hours after shock. The tissue damage accounting for the rise in transaminase is to be found in the liver, not in the heart.

Treatment: Objectives and Principles

Since the discovery of a clinical phenomenon called endotoxic shock, many efforts have been made to effectively treat the disease. The prognosis and mortality from this form of shock have not altered appreciably in the interim. The treatment of endotoxic

shock is still largely controversial, and is concerned with many forms of therapy.

Before departing too far into the specific treatment of endotoxic shock, it must be remembered that it is but one form of shock. Examination of some basic concepts of cardiac action would therefore be helpful in providing rationale for treatment.

The ventricular work of the heart equals cardiac output and the diastolic length of fibers is expressed as filling pressure of the heart or central venous pressure. The ventricular function curve of the normal myocardium reveals that when the filling pressure of the heart is low, there is a large reserve in the cardiac pump capacity and the strength of myocardial contraction decreases. Therefore cardiac output can be improved by increasing the central venous pressure (CVP) with an increasing venous return, thereby increasing the diastolic length of the fibers. As the CVP increases, the strength of the myocardial contraction and cardiac output increase to a point where further increases in CVP no longer increase the myocardial work and cardiac output. It is necessary then to push the circulation with an adequate solution. Ringer's lactate and plasma are acceptable for this purpose. The IV infusion is done only with CVP monitoring. The central venous pressure is a much better and safer guide to blood volume replacement than blood volume determinations. The latter may be misleading rather than helpful. Massive transfusions, even in the elderly, never lead to pulmonary edema if the central venous pressure is maintained below 15 centimeters of water. It is important to realize that a peripheral venous pressure is by no means adequate representation of the CVP.

It has been erroneously assumed in the past that if a low central venous pressure existed, a cardiac deficit could not exist. Transfusion with elevation of central venous pressure and persistence of shock and a low cardiac output points strongly to cardiac failure not previously obvious. This becomes important because some studies have revealed no correlation between clinical diagnosis and hemodynamic abnormality. Some patients with bacteremic shock have demonstrated a volume deficit, and some have had a cardiac defect. A useful maxim in the treatment of most patients in a state of shock is transfuse until either the blood pressure, or central venous pressure rises; if the blood pressure returns to normal first, a volume deficit probably existed; if the central venous pressure rises before the blood pressure, a cardiac deficit predominates. If the cardiac output cannot be maintained and CVP is at upper limits of normal or elevated, the only solution may be an attempt to make the myocardium work more efficiently. This is an indication for digitalis. Digoxin is convenient and easy to use for this purpose; how-

ever, some prefer isoproterenol as an inotropic and chronotropic agent.

Although norepinephrine has cardiac accelerator action, this inherent chronotropic effect is opposed by reflex slowing secondary to vasoconstriction and elevated blood pressure. Norepinephrine also has widespread vasoconstrictor properties which limit its usefulness in endotoxic shock.

There is much discussion concerning the use of vasopressors in endotoxic shock. It is usually forgotten that shock is a failure of blood flow not of blood pressure. Drugs which elevate blood pressure without increasing flow are probably not useful in the treatment of shock. Usually a preparation of levorphanol bitartrate (*Levophed*®) or metaraminol bitartrate (*Aramine*®) is used to maintain blood pressure. The action of Levophed is primarily on the peripheral vasculature to produce vasoconstriction. According to a good many researchers, this adds to the primary disease, that of increasing pooling of blood by constriction. It can be a more dangerous drug to use than Aramine. The primary effect of Aramine is to increase cardiac output. If a vasopressor must be used, Aramine is the one of choice.

Aramine administration, despite its primary action on the heart, can increase vasoconstriction with prolonged use. It is usually agreed that a vasopressor should not be given unless the urinary output drops. Poor responsiveness to these drugs may in part reflect inappropriate use. Restoration of systemic pressure to the pre-existing level would be undesirable since it is achieved at the expense of excessive vasoconstriction. If a level is sought which produces optimal urinary output, the effect is achieved. This is usually in the range of 80-90 mm. Hg.

One form of therapy on which most everyone will agree is the removal of the infection or source of the endotoxin. Although this is agreed upon in principle, little action has been taken in some cases which might have been saved had positive steps been taken to eradicate the infective source. In the case of an abscess, incision and drainage should be performed. With a progressively declining clinical course in a septic abortion, one should not hesitate to do a hysterectomy.

A primary form of treatment is prompt and adequate antibiotic therapy. Chloramphenicol is the drug of choice. It has been found that 89 per cent of causative organisms are sensitive to chloramphenicol. Initially, the dosage may be as high as four to five grams per day. Eighty per cent of the organisms are sensitive to streptomycin, but its intramuscular administration makes it of no value when used with patients in shock. Tetracycline is effective in 70 per cent of the cases and may be used in combination with chloramphenicol. Since penicillin is adequate

in only three per cent of the cases of bacteremia, it is not of much value.

The use of a cortisone agent has been stressed in the treatment of septic shock and has definite merit. The glucocorticoids have use in improving the total cardiac output. They have an independent effect on the heart increasing the total cardiac output by 35 per cent in normal subjects although with no appreciable change in the blood pressure. Although studies have shown no potentiation of the effect of Levophed, hydrocortisone sodium succinate (*Solu-Cortef*®), is considered to have a synergistic effect upon Aramine. Large amounts may be needed, as much as two grams of Solu-Cortef per day, for the first several days. Hydrocortisone given in a dose of 50 mg/kg intravenously 30 minutes after induction of usually lethal endotoxin shock in animals prevented any great increase in individual organ or total peripheral resistance and preserved more normal blood flow to the bowel and other visceral organs. There is no data available on the amount needed to reduce incidence of stress ulcer or to prevent some supposedly antibody type reactions which may trigger portions of the shock mechanism.

Some investigators believe the use of phenoxybenzamine hydrochloride (*Dibenzylin*®) and similar adrenergic blockers to be of value in the treatment of these patients. Antiadrenergic agents were first introduced into the therapy for shock in the late 1940's by Wiggers, Remington, and their associates. They proved to be effective as prophylactic agents in hemorrhagic shock, but were not effective when given after hemorrhagic shock was already present. Nor were they effective in shock produced by bacterial activity, even when given prophylactically. Nickerson, who first introduced phenoxybenzamine hydrochloride, reports a modest degree of therapeutic benefit in patients treated during shock. Until his experience can be duplicated and improved on by others, there is strong justification for seeking a more effective agent. Part of the problems inherent with the use of this drug is the inadequate replacement of fluids during shock, however, and until recently this was not considered.

The logical treatment is to replace the expected deficit in plasma volume at the same time that excessive vasoconstriction is countered with an adrenergic blocking agent. Dibenzylin must be combined with copious amounts of plasma. The volume of plasma used is far in excess of the measured losses; merely replacing the measured loss does not give the best results.

The protective action of Dibenzylin appears to be due to its ability to moderate the severe vasospastic phenomena affecting the small veins and arteries in endotoxin shock. At least part of the protective effect of hydrocortisone also appears to be due to its ability

to suppress the vasoconstrictive actions of endogenous catecholamines.

Another approach to therapy of endotoxin shock concerns the acid-base balance. It must be emphasized that the acidosis of shock is merely a detectable sign of tissue anoxia. Correction of pH and base deficit does not signify correction of hypoxia. Indeed, after pH has been returned to normal by the administration of buffers, the degree of hypoxia may be unchanged or even increased. Once such buffers have been administered, the value of pH and base deficit is lost as an index of the severity of shock. At this point blood lactic acid which is not changed by buffers, and cardiac output are the key measurements in evaluating the adequacy of tissue perfusion. The continuing acidosis can depress the function of the myocardium, however, making it unresponsive to other forms of therapy. On this basis, therapy for acid-base balance should probably be initiated; Na bicarbonate given IV being the most satisfactory.

The reason for the acidosis is that the metabolic demands of the individual cells are not being met by the present exchange of substances. By lowering the demands of the individual cells, clinical improvement was noted by Blair, Cowley, and others. They report that cooling to 32 degrees for periods of 1 to 21 days resulted in clinical improvement in all of their patients. The pulse slowed in 96 per cent, the ventilation was augmented in 93 per cent, and the sensorium improved in 91 per cent. The hypoxic state was not entirely relieved but an increased tolerance was evidenced.

In some cases, bacteremia may initiate a drastic rise in temperature, sometimes to 108° and above; the treatment here is to cool the patient as fast as can be done by whatever means is possible.

Hyperbaric oxygen therapy is one of the newest forms of treatment. It has been tried in patients in

whom restoration of cardiac output and arterial blood pressure is followed by a persistently elevated blood lactic acid, which is a reliable measure of irreversibility. It has met with partial success. The assumption is that the oxygen at normal tensions is not reaching the cells of the body, or it is not being utilized due to inadequate flow or a failure of enzyme systems necessary for oxygen utilization.

Future Problems

With all the knowledge and methods of treatment of this form of shock, there has come no convincing mechanism of action of the endotoxin and no sure form of therapy. Much work remains to be done in this field in order to change the prognosis of this disease.

Apart from treatment of endotoxin shock, problems have arisen in the management of patients in whom a planned surgical procedure might produce shock. An example of this would be the open heart operation. The investigation of agents to be used in these situations opens a new era of hemodynamic study, with ultimate effects on treatment of all forms of shock.

GENERIC AND TRADE NAMES OF DRUGS

Levorphanol Bitartrate	<i>Levophed</i>	Winthrop Laboratories
Metaraminol Bitartrate	<i>Aramine</i>	Merck Sharp & Dohme
Hydrocortisone Sodium Succinate	<i>Solu-Cortef</i>	The Upjohn Company
Phenoxybenzamine Hydrochloride	<i>Dibenzyline</i>	Smith Kline & French

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas 66603.

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The President's Message

DEAR DOCTOR:

Dr. George A. Wolf, Jr. became provost of the University of Kansas and dean of the School of Medicine on September 1. He comes from Boston where he was executive director of the Tufts-New England Medical Center and vice president of Tufts University. Before this he was dean and professor of clinical medicine at the University of Vermont. Doctor Wolf received his M.D. degree from Cornell University in 1941 and is certified by the American Board of Internal Medicine.

We have had the pleasure of meeting Doctor Wolf and already think of him as one of the family. His attitude toward medicine, his ambition for the school, his interest in the Kansas Medical Society are our own. We feel comfortable with him and look forward to a continuation of the close relationships between this Society and the school.

In fact, Doctor Wolf emphasizes his hope that the cooperation between the physicians of Kansas and the school can be strengthened. We are confident he will say this when you invite him to speak before your society. You will enjoy meeting him. You will like what he has to say. We welcome him to Kansas and recommend him to you.



Sincerely,

James H. McClure M.D.

President



Editorial COMMENT

Title XIX of the Medicare law deals with health services under welfare. This program will give states a higher per cent of federal reimbursement to defray health care costs. Certain changes in the Kansas Welfare Act will be required before Title XIX can be implemented. It is anticipated that the 1967 Kansas Legislature will explore this question.

By way of example residence requirements within states must be eliminated, relative responsibility revised, and certain aspects of the lien law must be made to conform with the new federal act. A single state agency must be designated to administer Title XIX. The state shall define eligibility and prescribe benefits, but in general, this cannot be lower than the most liberal benefits applicable to money payment recipients at the present time. It is strongly urged that the payment shall be made more liberal both in eligibility and in benefits. When Kansas implements Title XIX the federal government will return to the state 61.45 per cent of all Kansas expenditures for health care to the indigent in all categories including the present MAA program.

Details of Title XIX are involved and would use considerable space. Below are excerpted a very few statements from a document of some 300 pages entitled *Handbook of Public Assistance Administration, Supplement D Medical Assistance Programs Under Title XIX of the Social Security Act*, prepared by the U. S. Department of Health, Education, and Welfare, and published on June 17, 1966.

Supplement D contains the official policies of the Department of Health, Education, and Welfare for Grants to States for Medical Assistance Programs under Title XIX of the Social Security Act, as added by the Social Security Amendments of 1965, Public Law 89-97, approved July 30, 1965.

Title XIX of PL 89-97

... They are prepared for use by state agencies and staff of the federal agency in carrying out their responsibilities for administering the public assistance programs in accordance with the federal act. . . .

The secretary shall not make payments under the preceding provisions of this section to any state unless the state makes a satisfactory showing that it is making efforts in the direction of broadening the scope of the care and services made available under the plan and in the direction of liberalizing the eligibility requirements for medical assistance, with a view toward furnishing by July 1, 1975, comprehensive care and services to substantially all individuals who meet the plan's eligibility standards with respect to income and resources, including services to enable such individuals to attain or retain independence or self care. . . .

In the interests of efficiency and better services to recipients, the "single state agency" may make arrangements with other state agencies or private organizations to act as its agent (a) in providing medical care and services under the state plan, (b) in making agreements with suppliers, and (c) in making arrangements as to payments of suppliers. In such case, the "single state agency" must be able to obtain from the agent the data needed for program planning, evaluation, reporting and accounting purposes. Also, the "single state agency" must be in a position to take such steps as necessary to assure that operations under such arrangements meet federal requirements. . . .

The passage of Title XIX marks the beginning of a new era in medical care for low income families. The potential of this new title can hardly be over-estimated, as its ultimate goal is the assurance of complete, continuous, family-centered medical care of high quality to persons who are unable to pay for it themselves. The law aims much higher than the mere paying of medical bills, and states, in order to achieve its high purpose, will need to assume responsibility for planning and

establishing systems of high quality medical care, comprehensive in scope and wide in coverage. . . .

States which initially limit the scope of their program to the minimum of "some institutional and some non-institutional care" will be expected to proceed at once, through a series of planned steps, to expand the scope of care to cover the five basic services which are required by July 1, 1967. As soon as these five services have been covered, states will need to proceed with further expansion in order to reach the goal of comprehensive medical care by 1975. Comprehensive care includes all preventive, diagnostic, curative and rehabilitative services or goods furnished, prescribed or ordered by a recognized practitioner of the healing arts within the scope of his practice. . . .

The principle of equality requires that the states provide inpatient hospital services, outpatient hospital diagnostic services, and the first three pints of whole blood, if not available from other sources, for all recipients, since the law requires that states, under Title XIX, be responsible for meeting the deductibles imposed under part A of Title XVIII.

In assuming responsibility for meeting the deductibles, the state assures all aged recipients these items of medical care, and hence must make them available to all other recipients.

Since part B of Title XVIII also affects the amount, duration, and scope of care offered under Title XIX, states, in considering the options under part B, must keep the equality concept clearly in mind. . . .

The Congress has made very clear its intent that the medical and remedial care and services made available to recipients under Title XIX be of high quality and in nowise inferior to that enjoyed by the rest of the population. To make sure that the concept of quality is not lost sight of, the law requires the states to establish methods and standards to assure high quality care. . . .

In order to secure a high quality of medical and remedial care and services, it will be necessary for states to establish realistic schedules of compensation for services, which should be commensurate with "reasonable cost" or "reasonable charge" and not inconsistent with prevailing community payments, such as those under Title XVIII or Blue Shield plans. . . .

Participating practitioners includes sufficient members of each profession, and a proportionate number of practitioners qualified for specialty practice within professions, so that the items of medical care and services included in the plan are available to eligible persons at least to the extent they are available to the general population. As a minimum, the participation ratio determined separately for each profession, and for specialties within a profession, should be approximately two thirds of such practitioners in the state. . . .

The requirement for fee structures permits a variety of means which may be used in determining payments to providers of services other than hospitals. An under-

lying assumption is that adequate financing is available to pay the costs of the medical and remedial care and services included in the plan. Among the means which may be used in relation to practitioners' services are usual and customary charges; negotiated fee schedules which allow fees equivalent or similar to those paid on behalf of individuals in similar financial circumstances by organizations that pay for substantial amounts of medical and remedial care and services (SMI under part B of Title XVIII, Blue Shield organizations, group health associations, and other insuring and governmental agencies); and other means, including payments on a capitation basis to an organization providing medical and remedial care and services. . . .

PHYSICIANS SERVING OTHER AGENCIES

The physicians listed are serving on AMA sponsored projects.

American Association of Medical Assistants, Advisory Committee

Charles T. Sills, Newton

Sears Roebuck Foundation

Glenn R. Peters, Kansas City

Medicine and Religion

William P. Williamson, Kansas City

Disability Ratings

The purpose of this committee is to prepare a table of disability ratings.

George F. Gsell, Wichita

Intern Programs

This is a special committee of the Council on Medical Education, formed to study intern programs.

Lucien R. Pyle, Topeka

Board of National Blue Shield Plans

Henry S. Blake, Topeka

Decline in New Medicines

(Continued from page 547)

physicians in this country. They are a medicine for gout, a long-acting tranquilizer, a diuretic agent and a hematinic.

In addition, a new chemical originated by a foreign subsidiary of a United States company was introduced in Germany, but is not available here.



Personalities—IN KANSAS MEDICINE

The following members of the Society were among those inducted as Fellows of the American College of Surgeons in ceremonies held during the annual meeting of the College in San Francisco in October: **Dean T. Gettler**, Fort Scott; **Wendale E. McAllaster**, Great Bend; **William C. Dreese**, Halstead; **Wallace F. Cox, Jr.** and **Herman H. Jones, Jr.**, Kansas City; **Rex Stone**, Manhattan; **George E. Miller, Jr.** and **Wendell K. Nickell**, Salina; **Stewart Hiatt**, Shawnee Mission; **Martin Halley**, Topeka; **Henry J. Biermann**, **Cline D. Hensley, Jr.** and **Sammy H. Kouri**, Wichita.

In September, **H. O. Marsh**, Wichita, participated in a round table discussion held during the meeting of the International Society of Traumatology and Orthopedics in Paris.

Dr. and Mrs. Frank Trump, Ottawa, recently returned from a six-week cruise in which they visited all the Scandinavian countries, Poland, Germany, Scotland, Ireland and England. After returning to Ottawa, they celebrated their Golden Wedding anniversary and **Dr. Trump's** 50 years in medical practice in Ottawa.

The annual meeting of the Kansas Division of the American Cancer Society was held in Wichita in October. **W. G. Cauble**, Wichita, was elected president of the Kansas Division for the coming year, and **Joseph O'Grady**, Halstead, was named as one of the new directors.

Dwight Lawson, Topeka, participated in panel discussions dealing with the cancer society, the physician and the community.

Special tribute was given to physicians who have served as presidents of the division since its incorporation. Among those recognized were, **Howard E. Snyder**, Winfield; **Orville R. Clark**, Topeka; **Charles H. Miller**, Parsons; **John P. Berger**, Wichita; **Larry E. VinZant**, Wichita; **A. M. Cherner**, Hays; **D. Cramer Reed**, Wichita; and **Lee S. Fent**, Newton.

H. V. Bair, superintendent of the Parsons State Hospital and Training Center, recently announced the appointments of **Kenneth R. Kennedy**, formerly of Overland Park, and **C. E. Gollier** of Independence, to the medical staff of the hospital.

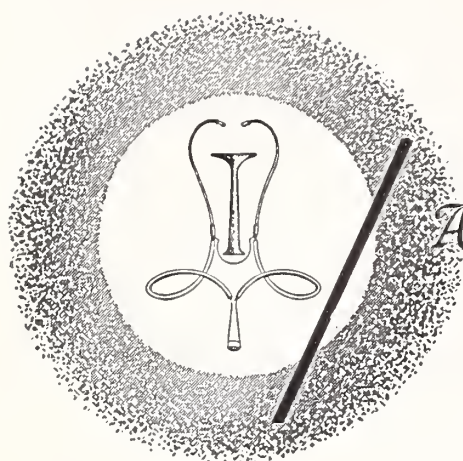
Wendell and Waitstill Nickell moved from Topeka to Salina in September.

Edwin F. Price, Emporia, was the speaker at the annual meeting of the Lyon County Association for Mental Health. The meeting was held in Emporia in October.

In October, **Dr. and Mrs. Richard H. O'Donnell** moved from Ellsworth to Clay Center.

Edgar H. Beahm, Independence, has been appointed Montgomery County Health Officer, replacing **C. E. Gollier**, Independence, who recently resigned.

(Continued on page 569)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

NOVEMBER

- Nov. 19 12th annual Nebraska Mid-State Medical Conference, Holiday Inn, Kearney, Nebraska. Subject: *Female Hormone Therapy: Recent Advances*.
- Nov. 27 8th National Conference on the Medical Aspects of Sports, Las Vegas. Sponsored by the AMA under the auspices of the Committee on the Medical Aspects of Sports. For more information, write: Secretary, Committee on the Medical Aspects of Sports, AMA, 535 N. Dearborn, Chicago 60610.
- Nov. 27-30. American Medical Association, annual clinical convention, Las Vegas.

DECEMBER

- Dec. 7-9 Kansas City Society of Ophthalmology and Otolaryngology, Hilton Inn, Kansas City, Missouri. Six guest speakers will participate in the refresher course. For information contact C. H. Steele, M.D., 480 Brotherhood Building, Kansas City, Kansas 66101.

JANUARY

- Jan. 8-10 First annual clinical meeting of the Society for Cryo-Ophthalmology, Dunes Hotel, Las Vegas. The \$10 fee will include one year's membership in the Society. For further information write John G. Bellows, M.D., 30 N. Michigan, Chicago 60602.
- Jan. 22-23 First National Congress on Socio-Economics of Health Care, sponsored by the Council on Medical Service and the Division of Socio-Economic Activities of the AMA, Palmer House, Chicago. For information write the Division of Socio-Economic Activities, AMA, 535 N. Dearborn, Chicago 60610.

POSTGRADUATE COURSES

University of Kansas:

- Nov. 14-17 *Internal Medicine*
Jan. 23-24 *Gynecology and Obstetrics*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Blvd. at 39th St., Kansas City, Kansas 66103.

University of Missouri:

- Dec. 7-8 *Current Concepts in Arthritis*

For further information write the Office of Continuing Medical Education, University of Missouri Medical Center, Columbia.

Hahnemann Medical College and Hospital:
(Department of Medicine)

- Dec. 5-7 *Theory and Application of Gas Chromatography in Industry and Medicine*
Dec. 12-14 *17th Hahnemann Symposium: Renal Failure*

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

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FOUNDATIONS OF ANESTHESIOLOGY, Vols. I and II, by Albert Faulconer, Jr., M.D. and Thomas E. Keys. Charles C Thomas, Publisher, Springfield, Illinois, 1965. 1,137 pages, illustrated. \$38.50.

In this "autobiography of anesthesiology" the authors have attempted to provide source materials which represent basic or classic works in the categories into which this group of contributions to anesthesiology have been organized. In each section one or more topics are treated as entities, such as respiratory physiology, inhalation anesthesia, intravenous anesthesia, depth of anesthesia and theories of narcosis, to mention a few. Although all significant writings could not be included, an effort has been made to see that some reference is available for most agents and methods.

While the compilation is intended primarily as background and reference for the teacher and the student in the field, it will also be of interest to physicians in other specialties.

The authors have spent much time and thought in assembling the papers included, after having chosen from so many, and they have designed a well organized format. Mention should be made of the biographical notes which precede each selection and which add to the value of the material.—*R.T.P.*

CURRENT THERAPY: 1966. Edited by Howard F. Conn, M.D. W. B. Saunders, Philadelphia, 1966. 857 pages. \$13.00.

Editor Conn, with the help of 12 consulting editors and 317 (by my count) contributors, gives us this 18th annual edition of *Current Therapy* contain-

ing nearly 400 articles. Even in a book of substantial size the number of articles dictates that each must be short. In addition they are concise and to the point. In some ways this is a virtue, but it means that statements must be dogmatic, and that therapeutic regimens must be of the cookbook type.

Perhaps the greatest utility of such a book is that it provides the physician with a succinct statement of the details of management of conditions that he is only infrequently called upon to treat. For conditions that he faces frequently he must already know as much as is offered here. If he wishes to understand better the rationale of therapy he will be well advised to look elsewhere.

Six appendices contain valuable information in concentrated form, and even the endpapers are put to use as a convenient place to have normal laboratory values of clinical importance.

The book is well made and adequately indexed. It seems probable that most physicians will find this an occasionally useful reference, but whether it is better to invest in each annual edition or one every three or four years is an open question.—*J.D.R.*

DRUGS OF CHOICE: 1966-1967. Edited by Walter Model, M.D. C. V. Mosby Company, St. Louis, 1966. 969 pages. \$16.75.

If you ever feel the need for the help of experts about the selection and use of drugs—and who doesn't?—this book is for you. This is a book of opinions, the opinions of experts, concerning the selection of the best drugs for many clinical conditions. It emphasizes the pathologic physiology involved and the mechanisms of drug action that underlie the rational selection and proper use of drugs. It

is not a cookbook but rather gives the reader a background of information against which to make appropriate decisions in the complexities of designing the treatment that will be best for a particular patient in his peculiar circumstances.

Four previous editions have appeared at two-year intervals. The present edition, written by the editor and 45 contributors, has been more extensively revised than any of its predecessors. There are 43 tables that give a large amount of useful information in convenient form.

The first chapter on the principles involved in the proper choice of drugs by Dr. Model is an excellent exposition on the practical application of clinical pharmacology that could be read and re-read with profit by all physicians.

In addition to a good general index there is an all-inclusive drug index (on green-tinted paper) that lists drugs by both their generic and trade names. The book is well printed and bound.

In summary, this book is highly recommended to all physicians who employ drug therapy, and one would do well always to have the latest edition available.—*J.D.R.*

YEARBOOK OF ORTHOPEDICS—TRAUMATIC PLASTIC SURGERY by Young and Owens. Yearbook Medical Publishers, Chicago, 1964-65.

This book is a synopsis of current literature dealing with orthopedic traumatic plastic surgical subjects. It is well indexed and quite informative.

It is particularly valuable in the discussion dealing with current information on fractures, dislocations and sprains.

The reviewer considers it to be a very helpful addition for quick access to current information on the subjects.—*D.D.H.*

Personalities

(Continued from page 565)

In recognition of his 26 years of service to the Fort Scott community, **Leland Randles** was presented a Distinguished Service Award by the Rotary Club

of that city. Dr. Randles recently discontinued his medical practice in Fort Scott and plans to relocate in the near future in another field of medical work. During the latter part of October, he and Mrs. Randles toured the Orient and attended a medical meeting in Tokyo.

The minister's role in working with the alcoholic and family was the subject of a seminar sponsored by the Shawnee County Mental Health Association. **William Simpson**, Topeka, was one of the guest speakers at the one-day seminar held in Topeka in October.

A reception to honor **James W. Campbell** was held in Lawrence in October. Dr. Campbell recently retired from private practice.

W. Eugene McCollough, Hill City, has been elected to active membership in the American Academy of General Practice.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Charles A. Clough, M.D.
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Kansas City, Kansas

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St. John, Kansas

ERRATUM

In the review of the book *Radiologic Diagnosis in Infants and Children*, published in the October, 1966 issue, the author's name was misspelled. The author of the book is Howard E. Brodeur, rather than Howard E. Brodens.

KANSAS STATE DEPARTMENT OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in July, 1966 and 1965

<i>Diseases</i>	1966	<i>July</i>		<i>January-July Inclusive</i>	
		1965	<i>5-Year Median 1962-1966</i>	1966	<i>5-Year Median 1962-1966</i>
Amebiasis	2	—	1	6	3
Aseptic meningitis	—	—	—	—	3
Brucellosis	—	—	—	3	3
Diphtheria	—	—	—	—	1
Encephalitis, prim., infectious	1	1	2	2	8
Encephalitis, post-infectious	—	—	*	—	4
Gonorrhea	285	191	244	1753	1433
Hepatitis, infectious	11	18	22	110	321
Meningococcal meningitis	1	—	1	10	13
Pertussis	3	3	3	11	11
Poliomyelitis	—	—	—	—	—
Rheumatic fever	—	—	—	—	2
Salmonellosis	29	21	21	121	151
Scarlet fever	—	1	1	77	59
Shigellosis	7	5	12	41	79
Streptococcal infections	94	100	70	1563	2116
Syphilis	82	67	82	691	525
Tinea capitis	—	11	1	26	37
Tuberculosis	23	22	22	186	141
Tularemia	—	—	—	—	2
Typhoid fever	—	—	—	2	—

* Statistics for 5-year median not available.

ARTHROPOD-BORNE VIRAL
ENCEPHALITIS

The probability of mosquito-borne encephalitis reaches its peak in Kansas during late summer. However, to date in 1966, no cases in humans have been reported. Suspect cases in horses have been reported, but none have been confirmed by laboratory examination.

In the event that cases should occur, an early start is necessary to insure the success of control measures. Accordingly, we urge that physicians report each case of febrile central nervous system disease suspected or diagnosed as viral encephalitis. A physician caring for a single case may not consider it to be of much public health significance, but if 50, 100, or possibly even 500 physicians are caring for "isolated" unreported cases, then a serious problem becomes innocently masked.

Specimens from suspect cases should be collected for laboratory examination as follows: 1) acute serum (5 cc. separated from cells) and mailed to the State Health Department Laboratory as soon as col-

lected; 2) convalescent serum, two or three weeks later; and 3) stool specimen during acute phase for virus isolation. Specimens should be sent frozen if it is likely that they will be in the mail for more than 24 hours.

INFLUENZA VACCINE AND ITS USAGE

Influenza vaccine has shown protective value when the viruses incorporated in the vaccine have been antigenically similar to those causing the epidemic disease. Annual influenza immunization is not currently indicated for everyone, but vaccine should be given regularly to persons in groups which are known to experience high mortality from epidemic influenza. Examples include persons of all ages who suffer from chronic debilitating diseases such as rheumatic heart disease, chronic bronchopulmonary diseases, diabetes mellitus, and Addison's disease.

Patients residing in nursing homes should be considered at particular risk since their more crowded living arrangements may allow greater spread of disease once an outbreak has been established.



DANIEL V. CONWELL, M.D.

Dr. Daniel V. Conwell, Wichita neuropsychiatrist, died on June 28, 1966, at the age of 68.

Dr. Conwell was born at Blairstown, Iowa, on September 27, 1897. He received his medical degree from the University of Iowa School of Medicine in 1922 and served his medical neurological internship there. He served as clinical assistant, and instructor and lecturer in neurology at the University of Iowa and later was head of the Department of Neuropsychiatry at the Hertzler Clinic in Halstead. Dr. Conwell moved to Wichita in 1941 and prior to his death was head of the Neuropsychiatric Services and Neuropsychiatric Nurses Education at St. Joseph and St. Francis Hospitals in Wichita. He was also a neuropsychiatric consultant at the Veterans Administration Center in Wichita.

WILLIAM R. JONES, M.D.

Dr. William R. Jones, Canton, died in his office on September 1, 1966. He was 77 years old.

Dr. Jones was born in Seward County near Liberal on June 27, 1889. He was graduated from Kansas State University, Manhattan, in 1913. He later attended St. Louis University School of Medicine, and after serving in the U. S. Army during World War I, transferred to the University of Louisville School of Medicine, Louisville, Kentucky, from which he received his medical degree in 1922. Dr. Jones moved to Canton in June, 1922, and practiced there for more than 44 years.

Surviving him are his wife and a son.

WILLIAM C. MENNINGER, M.D.

Dr. William C. Menninger, 66, president of the Menninger Foundation, died at his home in Topeka on September 6, 1966.

Born in Topeka on October 15, 1899, he was graduated from Washburn College, Topeka, in 1919. He received his master of arts degree from Columbia University in 1922 and his medical degree from Cornell University School of Medicine in 1924. Dr. Menninger was one of the leaders in the field of psychiatry and his endeavors and achievements in helping the mentally ill are well recognized in the United States and other countries.

Dr. Menninger is survived by his wife, three sons and two brothers.

LESTER K. NIX, M.D.

Dr. Lester K. Nix, 55, Wichita, died on June 16, 1966, after a long illness.

Born on August 27, 1910, at Bruceville, Texas, Dr. Nix completed his primary education in the Wichita school system and graduated from Wichita University in 1931. He received his medical degree from Baylor University College of Medicine in 1937 and completed his internship at Wesley Hospital in Wichita. After completing his training, Dr. Nix entered general practice in Wichita and continued his practice there until ill health forced him to retire.

CHARLES F. ORTHWEIN, JR., M.D.

Dr. Charles F. Orthwein, Jr., M.D., Hutchinson, died at Grace Hospital on September 5, 1966, of injuries suffered in a water-skiing accident in August. He was 35 years old.

Dr. Orthwein was born in Kansas City, Missouri, on February 18, 1931. He was graduated from the University of Kansas School of Medicine in 1956. After serving his internship and residency in pediatrics, he established his practice in Hutchinson in 1961.

Survivors include his wife and two sons.

DANIEL PETERSEN, M.D.

Dr. Daniel Petersen, 77, retired Herington physician, died on October 3, 1966, at the Veterans Hospital in Muskogee, Oklahoma.

He was born at Atlanta, Kansas, on December 25, 1888, and was graduated from the University of Kansas School of Medicine in 1918. After serving in the U. S. Army during World War I, he began his practice in Herington in 1919 and continued until his retirement in 1965.

He is survived by his wife and two daughters.

The Kansas Medical Society—1966-1967

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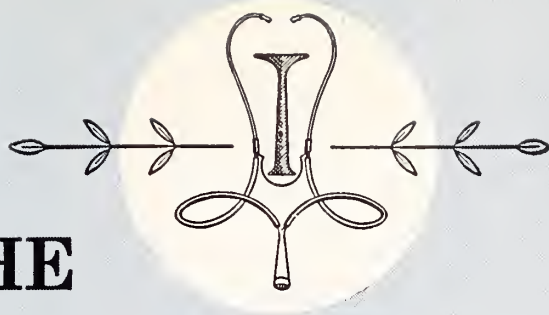
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THE

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DECEMBER
1966

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NO XII

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The JOURNAL of the KANSAS MEDICAL SOCIETY

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Johnson County Issue

The physician who practices in Johnson County, Kansas, lives and moves in two worlds. The first is metropolitan Kansas City. Here he works in a two-state, four-county, urban complex of well over a million people. The second is the state of Kansas. Although the Johnson County doctor is very much a Kansas Citian (the A's, Chiefs, and all), he is first of all a Kansan. It is accordingly with great pleasure that we, the members of the Johnson County Medical Society, present the scientific papers in this issue of the JOURNAL.

As special editor for this issue, I would like to express my thanks to all those who, often on short notice, contributed so expertly to this effort. I would also like to extend hearty appreciation to the editor, Dr. Orville Clark, and to our society president, Dr. Frank Coulter, for their encouragement and support.

FREDERIC SPEER, M.D.



Modern Medical Maxims

The use of maxims dates back 2,500 years to Hippocrates himself. In view of the modern complexities of medicine, perhaps we have need for this ancient method of stating medical truths. To this end the authors of this paper have collaborated to present the following list of *Modern Medical Maxims*.

Radiology

- Good radiology begins and ends in the dark room. More radiographic diagnoses are missed by poor or inadequate films than from any other cause.
- When radiographic diagnoses are missed it is usually because the pathology is unseen rather than misinterpreted. Make a systematic search of your films.
- An adequate cone (one that produces at least three white corners) will do more to improve diagnostic quality of radiographs than any other one thing.
- When the indication for barium enema exists, the indication for a proctosigmoidoscopy has already existed.
- Have in mind the reason for the radiographic examination and let your radiologist in on the problem.
- Remember to film the opposite side in problem injury cases (Allen's rule number 1).
- X-ray examination of the skull is not the first thing to be done in a head injury. "Be more concerned with the marbles than the bag."
- The favorite hiding place for urinary tract calculi is over the sacrum.
- When an intravenous pyelogram is indicated in a child, a voiding cystourethrography is probably also indicated.
- A gallbladder examination is not complete without upright, lateral decubitus or upright pressure spot films, especially the last. These are more important than "after-fat" films.
- The acute abdomen in an infant demands emergency studies—including radiologic studies—until a diagnosis is established. The order of importance in the radiographic examination is: (1) chest, (2) abdomen, (3) pyelogram, (4) colon, and occasionally (5) stomach.
- Radiosensitivity and radiocurability are not the same thing.

LEWIS G. ALLEN, M.D.
Mission

General Surgery

- Intramuscular injections should never be given in the buttocks. Use the deltoid muscle or the lateral aspect of the thigh.
- Sigmoidoscopy should be performed as part of the the routine workup.
- Ingrown toenails can be effectively treated on an outpatient basis. Insert a thin, folded strip of stainless steel around the offending edge of the nail, using local anesthesia. The sheath causes no pain and may be removed without anesthesia when the nail has grown free.
- Because gangrene may be an early occurrence, even the gentlest external reduction of a strangulated hernia is not without danger.
- Successful inguinal hernia repair demands adequate restitution of the fascial envelope of the abdominal cavity.
- Plantar warts that cannot be excised and fulgerated because of their number or size often disappear with repeated injections of 1 per cent procaine.
- We used to hear of the "golden period," the first 6 to 12 hours after a contaminated wound is sustained. We were told that suturing is usually the treatment of choice during this period but is contraindicated later. This concept still is valid, even in this antibiotic age.
- Incisions for appendectomy and herniorrhaphy that are parallel to Langer's lines heal under less tension and give a better cosmetic result.
- Even in the absence of pulmonary embolism, thrombophlebitis of the deep vessels of the lower extremity often responds better to emergency femoral thrombectomy followed by anticoagulants than to anticoagulants alone.

ROBERT F. CAVITT, M.D.*
Shawnee

Obstetrics and Gynecology

- Migraine headaches in women occurring in the pre- or post-menstrual phase are frequently helped by judicious use of estrogen.
- Modern detergents sometimes irritate tender skin and may be the etiology of some cases of vulvitis.
- If there is pain when the cervix is moved in any direction, don't forget ectopic pregnancy as a causative factor.
- Puberty in the female is as upsetting as the menopause, and a teenage girl needs an attentive ear and occasionally a temporary hormone lift too.
- The best oral contraceptive for the teenage girl is when she shakes her head from side to side and says, "No."
- When the husband refuses to get a sperm test in infertility studies, try getting a postcoital Huhner's test to see if she is killing them with her secretions. If they are all dead he will make a dead run to the urologist to prove it's her fault.
- If an ovarian cyst persists more than three months on successive monthly examinations, it is worth while to explore. It could be a cancer, even in an eighteen-year-old girl. We have had two such cases in three years.
- Repeated cystitis may be due to simple poor hygiene. Cleansing forward after urination brings vaginal secretions into the urethra. Instructions in cleansing backward may prevent many a recurrence.
- Even in the single girl, pregnancy is still the most common cause of amenorrhea. If she isn't bleeding, she may be breeding.
- Dysmenorrhea is one of the most common causes of absenteeism in women in industry. Pregnancy is a close second. "The pill" when used as directed will markedly reduce the incidence of both.
- Routine Papanicolaou smears should be done on all females at least annually and preferably at six-month intervals. In 21 cases of carcinoma in my practice in 10 years, 10 were under 30 and 15 were under 35.
- When a pregnant patient presents at term with bleeding the differential diagnosis is between placenta previa and abruptio placentae. If the head is well engaged deep in the pelvis, you can be pretty sure it is not placenta previa.

ROBERT F. HORSEMAN, M.D.
Mission

* Dr. Cavitt is director of the Johnson County Health Department and rector of St. Luke's Parish, Shawnee, Kansas.

Ear, Nose and Throat

- The development of unilateral nasal polyps in the middle or older age groups suggests malignant disease of the maxillary sinus on that side.
- One must suspect mucoviscidosis (cystic fibrosis) when nasal polyps are seen in children. A sweat test may be confirmatory.
- Acute allergic polyps may be injected directly with steroid solutions with marked regression in many instances.
- Neosporin powder (polymyxin B, zinc bacitracin, neomycin) is effective in treatment of a draining ear with a large perforation. The ear must be cleaned prior to treatment. Surgical management is required after acute drainage has ceased.
- The dry, itching, and recurrently infected ear is best treated by preventing the itching which leads to scratching and staphylococcus folliculitis. A powerful steroid ointment will stop the itching. The acute condition must be treated with antibiotic drops.
- Fungus is a rare cause of acute ear infection and is usually found only in old, wet mastoid cavities. It may be recognized by its colorful black, white, gray, or orange spores. Treatment is aimed at drying the ear, either with medication or mechanically, using the dry air produced by a hair dryer.
- If the nasal packing used for treatment of epistaxis is soaked in Neosporin ointment, it may be left in place for many days without producing odor, irritation, or infection.
- Most patients complaining of "sinus" or post-nasal discharge actually have too little mucous output which is being dried and thickened by low humidity environment. Treatment with sinus medication is a mistake, as this will further dry the nose, leading to sinusitis, rhinitis, laryngitis, and bronchitis. Humidification with the cold steam devices at night may be of great benefit.
- The newest and most outstandingly successful treatment for recurrent fluid in the middle ear with its attendant hearing loss is the implantation of non-reactive drainage tubes through the eardrum. This bypasses the non-functioning eustachian tube and prevents the formation of fluid.
- Any patient with unilateral neurosensory (nerve) hearing loss must be screened for cerebellar pontine angle tumor. Advance cases may have bilateral deafness and a diminished corneal reflex on the affected side.

JAMES B. BARKER, M.D.
Prairie Village

Preventive Medicine

- Straight tetanus toxoid boosters should not be given. Instead use diphtheria-pertussis-tetanus (DPT) or diphtheria-tetanus (adult), depending on the patient's age.
- In the face of jet-air travel from endemic areas to this country, smallpox vaccination is more vital than ever.
- All our patients should be immunized against diphtheria, pertussis (if under 6 years of age), tetanus, polio, and measles (if under 15 years of age).
- Influenza vaccine works. Use it according to USPHS annual recommendations. They currently recommend 1 ml. at two-month intervals. If the patient has had an injection as recently as 1963, one injection is enough. If there is a history of a severe reaction, give 0.10 ml. intradermally.
- Report all contagious diseases to your local health officer. Your nurse can do this for you.
- Animal bites should be followed by local health authorities.
- Because of its tendency to mask infection, an ophthalmic ointment containing corticosteroids may be dangerous. It is strongly contraindicated where herpes simplex is known or suspected.
- Avoid using in the eye antibiotics that may later be needed for systemic use. Patients are readily sensitized in this way.
- A second tuberculin test should be done at about the age of 15 years.

DR. CAVITT

Ophthalmology

- A frequent and often overlooked cause of blinking in children is the intertwining of long lashes of the upper and lower lids at the outer canthi. When these are cut the blinking stops.

- There is no satisfactory evidence that either the ciliary or extraocular muscles become unduly fatigued in eyestrain. Even if they did, they would not produce the characteristic pain of eyestrain.
- Even in a severely hypertensive patient, unilateral papilledema should raise suspicion of impending venous occlusion.
- Photophobia and lacrimation under the age of three should make one suspect infantile glaucoma.
- Ischemic optic neuropathy (vascular pseudopapillitis) may occur in diabetics without retinopathy. The small vessel disease known to occur elsewhere in diabetics can occur in the optic nerve.
- Macular disease is next in importance to cataracts as a cause of visual loss. Photocoagulation may be a hopeful procedure in selected cases.
- The needles within the common burdock, *Arctium minus*, may be a frequent source of foreign bodies in ocular tissues, usually producing vertical linear corneal scratches.
- Granular changes are seen in the lens and cornea of some patients given large doses of chlorpromazine.
- Routine use of topical steroids in corneal injuries can lead to uncontrollable fungal superinfection. In the case of a red, scratchy eye, they may dangerously worsen an overlooked herpes simplex keratitis.
- Dryness of the eyes in older individuals is Sjogren's syndrome until proved otherwise.
- Studies have indicated that a significant amount of retinal pathology can be observed by peripheral retinal examination in supposedly normal retinas.
- In sudden loss of vision associated with papilledema and dilated retinal veins, the most likely cause is temporal arteritis.

RICHARD O. COE, M.D.
Prairie Village

Allergy

- If the patient (or his mother) asks about foul breath, try removing milk and chocolate from the diet. Egg may also be an offender, especially if the patient says, "When I eat an egg for breakfast, I taste it all day."
- A sudden, severe dermatitis with streaks, especially on the forearm, chin, and cheek, is due to poison ivy until proved otherwise.
- Bacteria thrive on a surface already disturbed by allergy. Hence we need to watch for insidious infection in nose allergy, asthma, and eczema. Less widely known (and every bit as important) is the infection that often develops in the vulva and bladder in food-allergic girls and women. Common causes are citrus fruits, tomato, milk, and black pepper. In little girls, food colors found in Popsicles, Kool-Aid, and pop can cause this.
- The most common causes of recurrent canker sores (and stomatitis in general) are toothpaste and vinegar, especially apple vinegar. Have the patient switch to a simple tooth powder (like Dr. Lyons) and avoid sour dressings and pickles. Other causes: tomato, orange, apple, chocolate, walnut and pecan, pineapple, banana, and coconut.
- No matter how dubious you are, beware of the drug which the patient says he cannot take. You have nothing to gain and everything to lose by ignoring his opinion.
- Nothing is easier to start than asthma nebulizers and nose drops. And nothing is harder to stop. Try to relieve the patient in other ways.
- The first thought in a flare of an allergic disease (especially asthma but also eczema, nasal allergy, serious otitis media, and allergic diarrhea) is *infection*.
- Many a family doctor has relieved chronic headache, tension, and fatigue by withdrawing milk and chocolate from the patient's diet. Also consider corn (in all its forms), onion, cinnamon, and pork. Many times the patient himself has a clue as to the cause.
- Steam, hot or cold, relieves perhaps 75 per cent of children with croup, cough, bronchiolitis, bronchial pneumonia, and asthma. But it may make the others much worse!
- Most people with respiratory allergies have trouble with various odors and fumes. The most common are: smoke, hair sprays, newspaper, Christmas trees, soap, paint thinner, and perfumes. Perfumes may cause the most violent type of headache.
- The allergic patient knows he is different and feels that he is inferior. After ten hours of college psychology, he suspects that he is a nut. When he finds that you take his complaints seriously and that you will make available to him modern antiallergic treatment, he will be your most loyal and appreciative patient.

FREDERIC SPEER, M.D.
Mission

Religion and Medicine

- You will be able to understand and help your patients better if you know their religious views on birth, baptism, sickness, and death.
- The minister should bring his unique help to your patient just as you bring yours.
- Troubled patients are often better referred to a strong minister than to a psychiatrist.
- If you have any religious convictions, use them in your practice, and you will never give them up.

REV. DR. CAVITT

Clinical Pathology

- The protein-bound iodine may be abnormally high for months following injection or ingestion of diagnostic iodides used for x-ray procedures.
- "Stick tests" may be unreliable when applied to the differential diagnosis of coma when the possibility of hypoglycemia exists.
- The demonstration of acid-fast bacilli in sputum by smear alone does not warrant directing a patient to a sanatorium for evaluation. Confirmatory cultures of pathogenic acid-fast bacilli must be obtained before this step is taken.
- In general the most useful single kidney function test is still the concentration-dilution test.
- A class 3 or more Papanicolaou smear should be repeated. If the result is the same, it should be followed by a cone biopsy.
- No satisfactory method of demonstrating homologous serum hepatitis virus in donor blood has yet been developed.
- The second most common cause of hemolytic disease of the newborn is ABO incompatibility.
- Oral contraceptive pills tend to elevate protein-bound iodine.
- The sulfobromophthalein (BSP) test remains the best liver function test.
- In spite of advances in transfusion techniques, complete testing may fail to reveal antibodies capable of causing a hemolytic reaction. Every blood transfusion must be recognized as potentially dangerous, and potential hazards should always be carefully weighed against possible benefits.

JOHN E. JOHNSON, M.D.
Mission

Pediatrics

- The detergent and bacteriostatic emulsion pHisoHex® has been found to be remarkably effective in helping prevent staphylococcus infection in the nursery. But if it is sent home with the mother, it is capable of causing skin dryness and erythema.
- Although the value of circumcision in the newborn is still controversial, the higher rate of cancer of the cervix in the consorts of uncircumcised men is an argument for routine circumcision.
- In view of the multitude of immunizations now indicated in infants, the routine inclusion of a product with the doubtful value of influenza vaccine is not recommended for routine use.
- Frequently more can be learned about respiratory disease in infants by watching the patient breathe than by physical examination.
- Keeping the infant on sweetened formulas and strained foods for too long a period interferes with the development of good eating habits. As soon as he sits alone, the child may be included in the family meal and be given suitable table foods.
- Preliminary infusion of albumen in infants requiring exchange transfusion for blood incompatibility binds bilirubin and renders it less toxic.
- Repeated bronchiolitis usually indicates that the infant is developing true asthma.
- If the child has had three or four attacks of pyuria, recommend urologic consultation. Retrograde pyelograms are much more efficient than intravenous pyelograms.
- If recurrent respiratory infection in infants is not found to be due to allergy, consider hypogammaglobulinemia.

- Tonsillectomy and adenoidectomy are now less commonly indicated. But the child who has (1) repeated ear infections with actual or threatened hearing loss or (2) tonsil infection every month or so for a year is a candidate for these procedures. An occasional indication is persistent mouth-breathing with facial changes.

MARY ELIZABETH EVANS, M.D.
Mission

Internal Medicine

- Especially in men, mild pain in the retrosternal area may indicate pre-infarction. Sometimes the pain is generalized over the anterior chest.
- Serum creatinine phosphate kinase (CKP) is usually elevated in skeletal muscle and heart disorders but not in liver disease.
- Allopurinol (Zyloprim), a new inhibitor of uric acid formation, appears to be the present drug of choice in gout.
- Fatigue may be the first sign of congestive heart failure.
- There is increasing interest in the use of gold in rheumatoid arthritis and renewed appreciation of its value.
- Elevation of fractions 4 and 5 of lactic dehydrogenase isoenzyme (LDH) values is useful in detecting slight myocardial necrosis. Fraction 1 is characteristically elevated in liver disease. At times these findings are helpful where there is confusion as to the relative importance of liver damage and heart disease in congestive heart failure.
- The tuning fork deserves a place beside the percussion hammer. It may pick up neuropathies like those associated with pernicious anemia.
- The most promising new diuretic is the new non-thiazide, furosemide (Lasix).
- Patients with pernicious anemia may have antibodies against gastric mucosa, thyroid, and other organ elements, findings which suggest an autoimmune disease.

ROBERT H. KURTH, M.D.
Mission



Liver Biopsy . . .

In the Community Hospital*

WILLIAM R. BROWN, M.D., *Prairie Village*

A HOUSEWIFE in her early forties was admitted to the hospital with abdominal enlargement, loss of appetite, and amenorrhea. She admitted to erratic food intake and considerable use of alcohol. Her liver was enlarged five finger breadths below the right costal margin. Complete blood count and urinalysis were normal. Other laboratory findings were: sulfobromophthalein, 48 per cent retention in 45 min.; thymol turbidity, 2 units; cephalin flocculation, 3+ in 48 hours; total protein, 5.5 gm.; albumin, 2.8 gm.; alkaline phosphatase, 3 units; total bilirubin, 1.4 mgm. A needle biopsy of the liver was performed. Fatty metamorphosis with no increase in fibrous tissue was reported.

The above case is presented as an example of how needle biopsy of the liver may be used in a community hospital. This case and others like it will be discussed for the purpose of encouraging wider use of this valuable procedure.

Review of Cases

The cases that form the basis of this study are taken from the records of Baptist Memorial Hospital. They represent all patients who have had a liver biopsy during the last five years. It was found that 47 such procedures had been done during this period. Of this group, only 17 were needle biopsies. The findings in both types of biopsy are outlined in *Table 1*.

It is apparent from a review of these cases that surgical biopsy was usually done when metastatic carcinoma was suspected. In most cases there was gross replacement, and we would expect needle biopsy to be positive. All of these patients died within a few days or weeks after surgery. The cases of cholangitis all had surgical biopsies and probably rightfully so. Most of these patients are deeply jaundiced and might develop bile peritonitis if needle biopsy were used.

In six cases, fatty metamorphosis was an incidental finding. In a seventh, fatty liver was the only finding. The two granulomas, the benign tumor, and the case of polycystic disease were entirely unsuspected. It is interesting that six of the surgical biopsies and only one needle biopsy reported normal liver tissue. One

patient died after needle biopsy. This case will be discussed in more detail.

It is striking that so few needle biopsies are found in this series. This is in contrast to the report of Jones, who summarized 134 needle biopsies on 128 patients in a two-year period in a university hospital

A review was made of all liver biopsies performed over a five year period in a community hospital. A total of 47 biopsies were done, only 17 of which were needle (aspiration) biopsies. Representative cases are discussed which show needle biopsy to be a valuable and feasible procedure in a community hospital setting.

of 210 beds. Many of the biopsies were done by the interns and residents. In his series only two complications were encountered. One patient with a carcinoma of the common duct had a localized bile peritonitis. In the other case, a patient with a meningoendothelial sarcoma bled into the peritoneum but recovered after

TABLE 1

	Needle Biopsy	Surgical Biopsy
Inadequate tissue	2	0
Normal liver	1	6
Cirrhosis	3	3
Fatty metamorphosis	3	4
Metastatic carcinoma	1	6
Hepatitis	4	1
Non-specific changes	2	3
Extra medullary	1	0
Hematopoiesis		
Cholangitis	0	3
Granuloma	0	2
Benign tumor		
Pseudo-Hepatoma	0	1
Polycystic liver	0	1
Total cases	17	30

* From the Department of Medicine, Baptist Memorial Hospital, Kansas City, Missouri.

being transfused with one unit of blood. He did not require surgery.

Illustrative Cases

CASE 1: A white male, age 28, was admitted with a history of melena and anemia. Physical examination revealed the spleen to be enlarged four finger breadths below the costal margin. An upper gastrointestinal series showed a questionable duodenal ulcer. Past history revealed two previous episodes of gastrointestinal bleeding, starting at 12 years and recurring at 21. No definite diagnosis had been established, although duodenal ulcer was suspected on x-ray and clinical grounds. Liver profile revealed normal function except for sulfobromophthalein retention of 15 per cent at 45 minutes. There was evidence of hypersplenism with a WBC averaging 3,800 and platelet count averaging 100,000. Colloidal gold liver scan revealed uptake by the spleen and what appeared to be a normal liver. Subsequent surgery revealed large esophageal varices. A spleno-renal shunt was performed, and the patient remains well three years later.

Comment: Needle biopsy in this case established that the liver was normal and suggested the diagnosis of portal block. This is presumed to have been due to thrombosis in infancy following omphalitis. The sulfobromophthalein retention in these cases is unexplained.

CASE 2: A white female, age 76, was admitted with jaundice and hepatomegaly. A diagnosis of carcinoma of the colon had been made three years before. The alkaline phosphatase was 3 sigma units and the total bilirubin 14 mgm. Needle biopsy revealed metastatic adenocarcinoma of the liver. The patient suffered no ill effects from biopsy but died in a few weeks of carcinomatosis.

Comment: According to Schiff the possibility of recovery of metastatic carcinoma in the liver is approximately 70 per cent. This has been confirmed by Bowden and Kravitz, and Zamchek and Klausenstock. These workers agree that risk of the procedure is not appreciably increased in carcinoma. Needless laparotomy is avoided and the interest of the patient is served. A negative biopsy, of course, does not rule out carcinoma and laparotomy may still be necessary.

CASE 3: This is the case reported at the beginning of the paper. The significant biopsy finding in this case is severe fatty metamorphosis without increase in fibrous tissue. This supports the diagnosis of alcoholic hepatitis. Davidson reported two types of hepatic change associated with alcoholism. In the first, fatty change predominated. In the second, hyaline necrosis with polymorphonuclear infiltration was the

major finding. He felt that cirrhosis developed more rapidly in the second group. A liver biopsy is the only way to distinguish between fatty metamorphosis and cirrhosis. Frequently they occur together and give identical laboratory features. Fatty metamorphosis commonly gives severe sulfobromophthalein retention with a minimum of other laboratory abnormalities. Uncomplicated starvation does not result in fatty metamorphosis as is generally believed.

CASE 4: In the following case, cited from personal experience, needle biopsy was not done when it might conceivably have changed the course of events. A white female, age 43, was admitted with nausea, vomiting, and abdominal pain. She had been treated for bronchitis and asthma for six weeks with several antibiotics. On examination she was found to be jaundiced and tenderness was noted in the right upper quadrant. The total bilirubin was 8 mgm. Other laboratory evaluation revealed a confusing picture with alkaline phosphatase normal (2.3 sigma units), thymol turbidity 1 unit, and cephalin flocculation 3+ in 48 hours. The bilirubin fluctuated slightly and on the third day was 4.6 mgm. total. The WBC was 23,400 with 2 filamented, 82 segs, 8 lymphs, and 8 monocytes. Hematocrit was 31 and hemoglobin 11.2 gm. The alkaline phosphatase was repeated on the third day and again was normal, 2.1 sigma units.

She was seen by a surgical consultant who felt she had hepatitis. She continued to run a hectic, intermittently febrile course and was quite toxic. When I saw her on the 23rd hospital day she had developed generalized thrombocytopenic purpura. Several platelet counts were below 20,000 and the serum albumin was 2 gm. There was a normocytic anemia of 6.8 gm. and hematocrit 20. Steroids were used in an attempt to raise the platelet count. The WBC had risen to 36,900 with 7 stabs, 87 segs, and 6 lymphs. Serum glutamine oxalocetic transaminase (SGOT) was reported 646 units on the 21st hospital day. The liver scan revealed a slightly irregular uptake suggesting multiple areas of diminished function. Four blood cultures were taken, and three out of four grew *Aerobacter aerogenes*. The patient died on the 44th hospital day.

Autopsy findings were: gallstones with common duct stones, ascending cholangitis, multiple liver abscesses, and portal vein thrombosis. She had also developed vegetations on the tricuspid valve, apparently as a pre-terminal event.

Comment: Because of conflicting laboratory studies the patient was treated for hepatitis when in reality she had cholangitis progressing to multiple liver abscesses. A needle biopsy early in the course might have established the diagnosis, and many of the later complications might have been avoided. While the

differentiation between intrahepatic and extrahepatic obstruction cannot be made in every case, the finding of polymorphonuclear leukocytes in miliary infiltration might have guided antibiotic therapy and shown the need for surgical intervention.

CASE 5: A 63-year-old white female was admitted with extreme weakness, weight loss of a few pounds, and anemia. These symptoms were of several years standing. Both her mother and grandmother had died of cancer. On physical examination there was slight edema about the eyes, pallor of the skin, and a recent flame hemorrhage in the right optic fundus. Her laboratory work included a hemaglobin of 8.6 gm. with hematocrit 26. WBC was 8,750 with 2 stabs, 69 segs, 26 lymphs, and 3 monos. Blood sugar and blood urea nitrogen were normal, and serology was non-reactive. The alkaline phosphatase was the striking finding, 26.0 sigma units and repeated 27.5. The SGOT was 31 units. The cephalin flocculation was 4+ in 48 hours.

Surgical biopsy of a questionable breast lesion was reported comedo-mastitis. Bone marrow aspiration biopsy was done and no spicules were obtained. Surgical bone marrow biopsy was then performed with the diagnosis of myelofibrosis and myelosclerosis. X-rays were done, including films of the abdomen, chest, colon, stomach, lumbar and cervical spine, and hands. None was diagnostic of significant pathology. An intravenous pyelogram was negative. There was evidence on the Thorne test of mild adrenal insufficiency. In all, over 140 laboratory tests were performed. Needle biopsy of the liver was the last procedure done. Several hours later the patient went into shock and died.

The liver biopsy showed only the extramedullary hematopoiesis, an expected finding in myelofibrosis. The biopsy was done in spite of lowered prothrombin time (below 30 per cent), a low platelet count (below 50,000), and the presence of ecchymoses at several needle puncture sites from previous injections. At autopsy it was found that the patient had bled into the peritoneum. There were approximately 500 cc of unclotted blood. The bone marrow was extensively replaced by adenocarcinoma. A shallow, ulcerating lesion on the lesser curvature in the stomach was the primary lesion. Extensive lymph node metastases were also present in the abdomen and chest.

Comment: The risk of needle biopsy in a seriously ill patient with evidence of a bleeding diathesis is considerable. From the record it appeared that the biopsy was the proximate cause of death in a patient with terminal carcinomatosis.

Discussion

Since the first use of aspiration liver biopsy in

1939 by Iversen and Roholm, and Baron, the procedure has been generally recognized as reasonably safe, efficient, and useful. Over-all mortality in the reviews by Terry, and Zamchek and Klausenstock, was 0.12 per cent and 0.17 per cent in a series of 10,000 and 20,000 samplings respectively. Severe complications occurred in only about 0.3 per cent. Intra-abdominal hemorrhage and biliary peritonitis are the complications of most serious import. Minor complications include pain in the chest, abdomen, or right shoulder. According to Popper and Schaffner, this occurs in 30 per cent of patients.

The technique of aspiration biopsy was significantly advanced by Menghini, who used a small-bore needle of special design which reduced the intrahepatic phase to approximately one second. However, the Zim-Silverman needle is quite reliable and at times secures tissue when the Menghini technique has failed.

Shorter, in his excellent monograph, discusses various techniques, indications, and contraindications for needle biopsy. There are 107 photomicrographs illustrating various disease states detected by this procedure.

Gross and Dockerty describe six cases of gross hepatomegaly with normal excretion of sulfobromophthalein. They cite cases of hemachromatosis, Laennec's cirrhosis, metastatic carcinoma, polycystic disease, amyloidosis, and chronic infection with *Brucella suis*. It is worth noting that in 50 cases of cirrhosis 13 per cent had normal sulfobromophthalein excretion. All of the above cases were diagnosed by needle liver biopsy.

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Under the Biliary Tree

—The Cystic Duct Stump

ROBERT M. MATHEWS, M.D., and
W. STEWART HIATT, M.D., *Prairie Village*

The Problem

CHOLECYSTECTOMY, ONE OF THE MOST COMMON of major surgical procedures within the peritoneal cavity, carries with it an uncommon number of hazards. These hazards primarily relate to the regional anatomy, i.e. congenital variations, distortion due to inflammation, scarring and edema, and the technique of surgical dissection.

Bodvall and Övergaard from the University of Goteberg, Sweden, found that in a series of 1,930 patients treated by cholecystectomy for gallbladder disease, 500 or 39.6 per cent had varying degrees of residual, postoperative distress. Fifty-five per cent of these patients with persistent symptoms had demonstrable cystic duct remnants longer than 10 mm. Approximately 20 per cent of these patients with long cystic duct remnants underwent reoperation.

Despite adequate warning in the literature, the problem of the cystic duct stump still remains. This presentation is based upon six cases of disabling, symptomatic cystic duct stumps which required reoperation during the year 1965. How can we prevent this unnecessary complication?

The Review

The concept of the "cystic duct remnant" has been thoroughly documented by such clinical investigators as Bye, Garlock and Hurwitt, Hayes, Glenn and Whitsell, Cohn and Hibner, and in a most excellent and recent survey, by Bodvall and Övergaard.

Bodvall and Övergaard were careful to establish a difference between those patients with continuous, severe distress, usually occurring within one month of cholecystectomy, and those patients with recurrent, severe biliary colic associated with chills and fever consistent with cholangitis. Removal of the cystic duct stump in the former group failed to relieve symptoms in 91 per cent of the patients. However, removal of the cystic duct stump in the latter group resulted in a cure rate of 92 per cent.

That the cystic duct stump syndrome is a clinical entity is uncontested. It may be known as a "reformed gallbladder" or cystic duct remnant, or be lumped into the categories of post-cholecystectomy syndrome

or biliary dyskinesia. Clinical symptoms primarily consist of pain in the right upper abdominal quadrant or epigastrium, frequently associated with indigestion, eructation, fever, chills, and occasionally jaundice.

The Anatomy

Hayes *et al.*, found a 47 per cent incidence of anomalies in 400 consecutive, primary biliary tract

The cystic duct stump syndrome is definite and demonstrable. Despite adequate documentation, the incidence of this syndrome is excessively high. This report is based on reoperation of six such patients during the year 1965.

operations. Braasch describes nine variations in biliary duct anatomy, all of which have surgical significance. Michels completes the anatomical maze when he says, "Although, in most instances, the cystic duct opens to the right of the hepatic duct, there are sufficient cases where the cystic duct joins the hepatic duct anteriorly, posteriorly or to the left to warrant the statement that the cystic duct may open anywhere along the course of the hepatic duct."

Review of standard anatomical texts reveals a glaring neglect of the importance of these variations. Frequently absent from description is the cystic duct that actually joins the common duct intramurally. This report includes two such cases of intramural juncture. The surgical significance of this anatomical variant becomes critical to the surgeon and patient alike. Further comment will be made concerning this problem.

These anatomical variants preclude a superficial, over-confident surgical dissection of the cystic duct. Thus, the experienced as well as the occasional operator must review and revise his own mental and manual approach to the surgical dissection of the cystic duct. He must be prepared to utilize operative cholangiography to aid in the detection of these subtle but dangerous anatomical obstacles to a successful operation and a cured patient.

The Pathology

The pathology involved in the cystic duct stump syndrome is limited. Chronic inflammation with fibrosis about the duct stump is the most common feature. Cholangitis, whether clinical or subclinical, most likely is the source of sphincter spasm and subsequent pain. Bacterial cultures almost invariably are negative.

A local neurogenic origin of pain has been proposed. Neuromas along the course of the scarred cystic duct remnant may possibly be a factor in explaining the pain experienced by these patients. However, the colicky nature of the postoperative distress and the delayed onset of symptoms, sometimes for several years, cast much doubt on the plausibility of this explanation.

Common duct stones may also occur with the cystic duct remnant. The incidence is approximately 20 per cent. This is the basis for common duct exploration at the time of reoperation.



Figure 1. Patient 1. Cholecystectomy in 1960. Two months prior to present admission, patient developed intermittent upper abdominal pain and subsequently intermittent fever. Intravenous cholangiogram (plano-gram technique) revealed a long cystic duct stump.

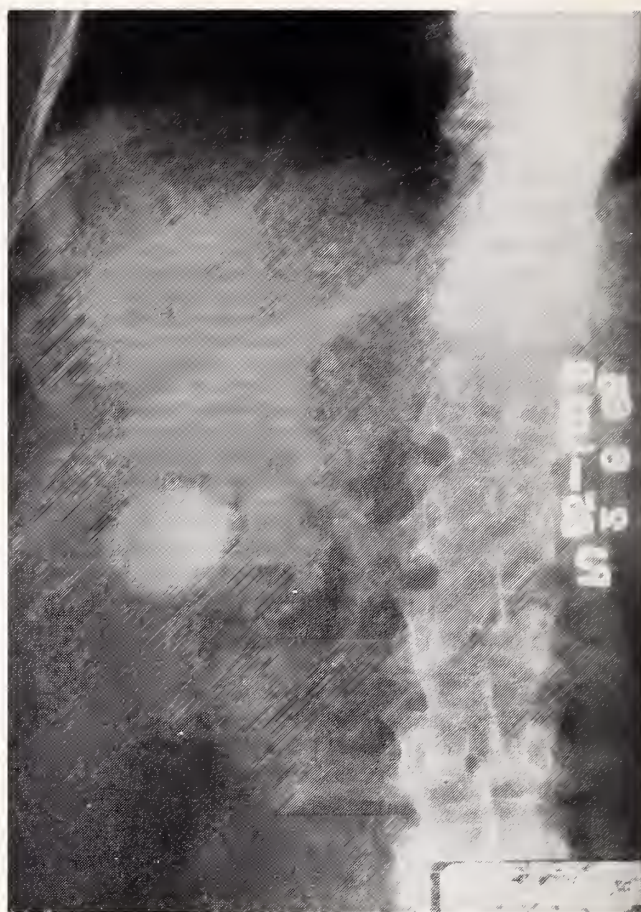


Figure 2. Patient 2. Patient had previous cholecystectomy in 1961. Two months prior to present admission patient developed epigastric pain and nausea with increasing intensity. Intravenous cholangiogram preoperatively revealed a "pseudo-gallbladder."

The Cholangiogram

The operative cholangiogram is not just a mechanical procedure to pursue because "everyone does it." When technically possible, the cystic duct cholangiogram not only provides useful information as to the presence or absence of common duct stones, but is also an individual anatomic study of the biliary duct system. It clarifies the length and course of the cystic duct. It frequently demonstrates anomalous variations of the hepatic ducts and sometimes the position of the pancreatic duct.

When performing a cholangiogram note the resistance and direction of passage of the tubing, catheter, or as we prefer, the Deknatel needle head. Using 50 per cent sodium diatrizoate (*Hypaque*®) as contrast media, avoid the tendency to inject too much dye. From 3 to 5 cc. of dye is ample for complete visualization. When there is sphincter spasm or obstruction due to stone or tumor, overdistention obscures details. Too high a concentration of dye also

diminishes the chances of identifying intraluminal stones.

Always take two exposures to ensure proper technique and to double check for artifacts. Remove clamps, retractors, and sponges from the peritoneal cavity and abdominal wall prior to injection of dye and x-ray exposure. Failure to do so often results in superimposed opacities obscuring the biliary duct system.

One of the most common technical faults in cholangiography is failure to position the patient properly. The body should be tilted slightly by sandbags under the right side or by mechanical inclination of the operating table. Failure to do this frequently positions the distal common duct over the spinal column, making interpretation of the films difficult.

The Technique of Cystic Duct Dissection

The cystic duct is the most neglected structure in cholecystectomy. Our plea and suggestion is to treat the cystic duct with more care and respect. Any qualified surgeon certainly has great respect for the right hepatic artery and the hepatic duct. Too often, however, the cystic duct suffers from partial exposure



Figure 3. How not to take a cholangiogram! Remove all retractors, tapes, and forceps prior to injecting dye.



Figure 4. A routine cystic duct cholangiogram showing spiral convolutions due to the valves of Heister. Be careful in dissecting out this cystic duct. The juncture is not clear.

and partial cleaning and its juncture with the common duct is completely ignored. We feel that more careful attention to the cystic duct is long overdue. The following technique is proposed:

- (1) Identify the cystic duct at its junction with the neck of the gallbladder.

- (2) Ligate the cystic duct at this point. This provides a point of traction to aid in further dissection and prevents the forceable passage of small stones and gravel into the common duct.

- (3) Clean the duct by dissecting from its wall, fibrous adhesions, nerve filaments, and connective tissue until an exact point of juncture is encountered. Cholangiography will aid in this maneuver. What one superficially believes to be the juncture is often merely a loose adherence of the cystic duct to the common duct.

- (4) When this juncture is firmly established, proceed with the cholecystectomy. *Do not clamp the cystic duct.* Besides being unnecessary this crushes tissue and may lead to an edematous, inflammatory reaction with subsequent bile leakage and excessive scarring near the common duct. Ligate the cystic duct in continuity with silk ligatures and divide. When dissection has been clean and there is no excessive tenting of the common

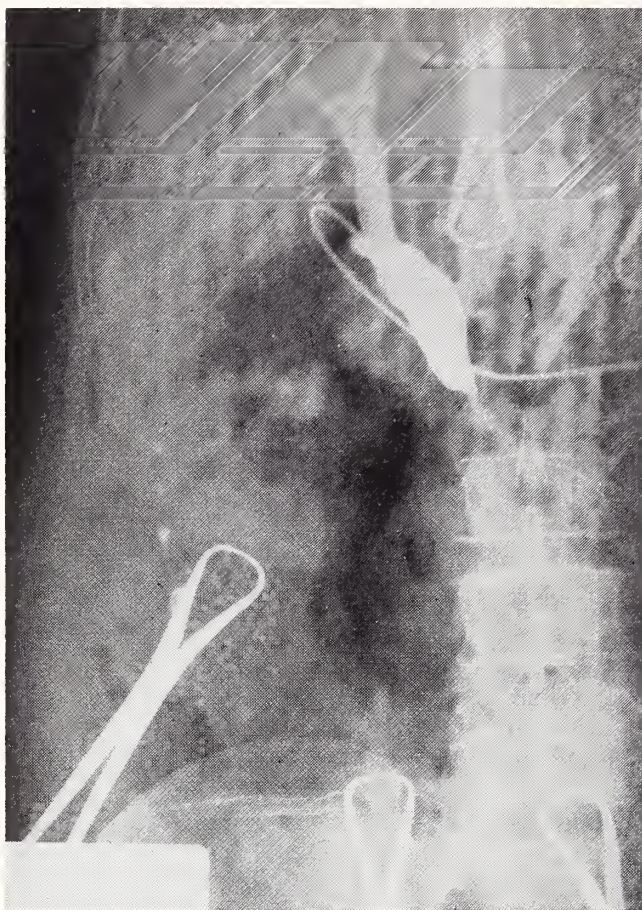


Figure 5. Extreme distal insertion of large cystic duct. Careful dissection in this area is mandatory.

duct, this technique provides the least traumatic method for securing the cystic duct stump.

(5) If one desires, an additional suture-ligature of fine silk may be used. This is rarely necessary. Be sure to allow enough cuff of duct tissue to prevent slippage of the ligature.

By following these simple but important steps in cholangiography and surgical dissection, one will have contributed to a decrease in the incidence of long cystic duct stumps and common duct stricture.

The Intramural Cystic Duct

Glenn and Whitsell caution against removal of the intramural cystic duct. "The cystic duct frequently is not only parallel to but actually intramural in relation to the lumen of the common duct. No attempt should be made to remove that portion of the cystic duct that is within the wall of the common duct. The specific surgical procedure should include complete excision of the remaining portion of the cystic duct and common duct exploration." This admonition is justified up to a point. Certainly a long intramural connection precludes any surgical excision. However, when the intramural portion is limited to two or

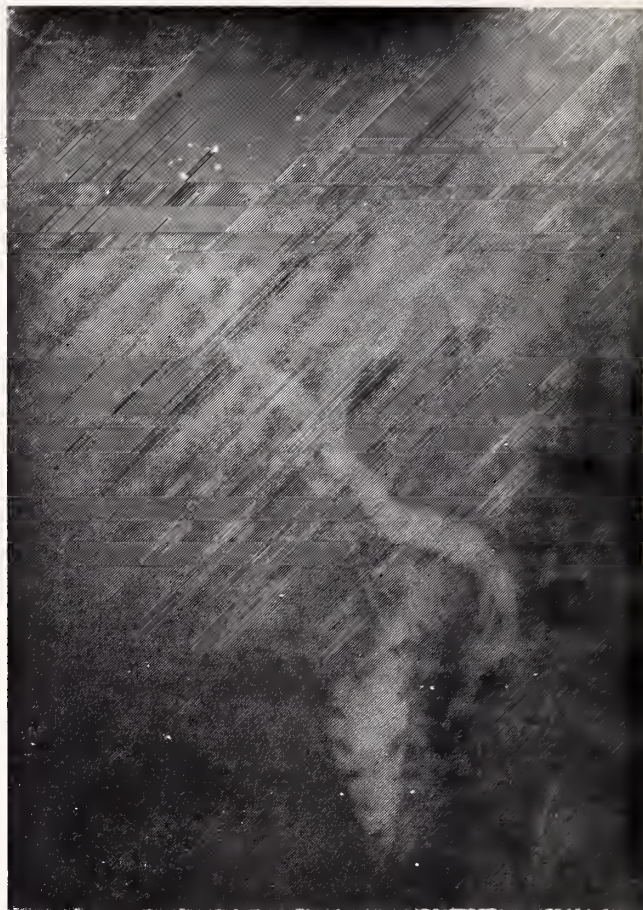


Figure 6. Routine operative cholangiogram shows an accessory right hepatic duct in close proximity to the cystic duct.

three centimeters, excision is both possible and advisable.

The common duct must be opened in all patients with long cystic duct remnants. Two patients in this report were found to have intramural cystic ducts for a distance of approximately 2.5 cm. The cystic duct was opened proximally and carried into the lumen of the common duct. The relatively short septum was trimmed away and the remaining free edges of the common duct were re-approximated over a T-tube. This was done without compromising the patency of the common duct. Failure to remove the limited segment of intramural cystic duct results in an incomplete operation with its possible pathological sequelae.

Summary

The cystic duct stump syndrome is definite and demonstrable. Despite adequate documentation, the incidence of this syndrome is excessively high. This report is based on reoperation of six such patients during the year 1965.

Evaluation of patients with previous history of cholecystectomy and recurrent upper abdominal pain



Figure 7. Patient 3. This patient had a cholecystectomy in 1961 for acute cholecystitis with jaundice. She was readmitted in 1965 with severe epigastric pain and recurrent jaundice. At operation a large cystic duct stump was visualized. The dilated common duct was obstructed by a stone.



Figure 8. Patient 4. Patient previously had cholecystectomy in 1962. Readmitted in 1965 with severe, right upper quadrant abdominal pain associated with fever and chills. At surgery marked scarring forced direct opening of common duct. T-tube cholangiogram revealed the presence of a cystic duct stump and a 2 cm. intramural portion distally. The septum was excised and the common duct closed over the T-tube.

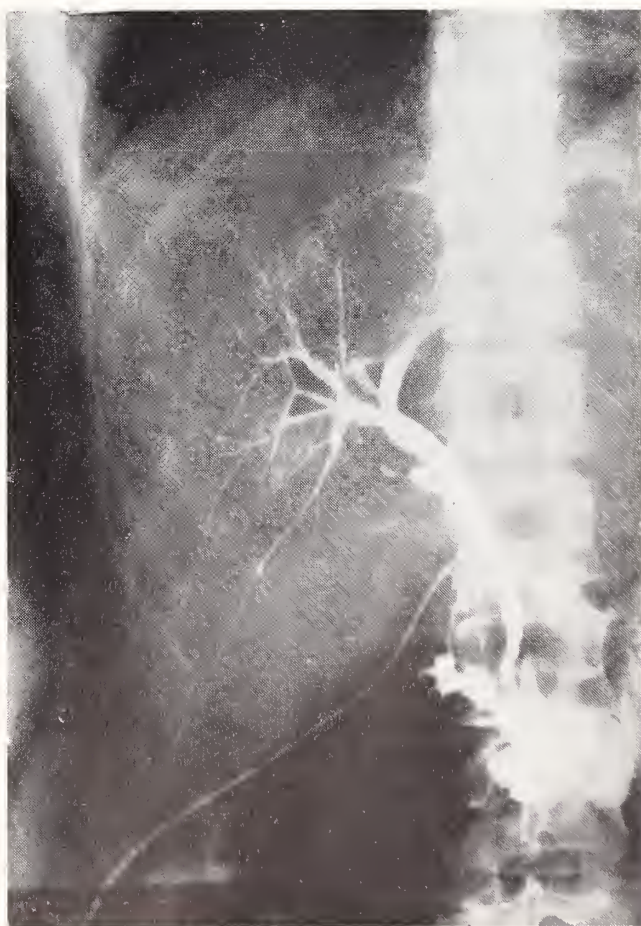




Figure 9. Patient 5. Previous cholecystectomy in 1964. Readmitted in 1965 with severe right upper quadrant abdominal pain, nausea and vomiting. Cystic duct cholangiogram revealed a cystic duct 2 cm. in length. In addition, the distal 3 cm. were intramural with the common duct. The septum was excised and the common duct closed over a T-tube.

with or without nausea and fever should include the possibility of a long cystic duct stump. A complete preoperative workup should include an intravenous cholangiogram. Even with non-visualization, when there is no other explanation of symptoms, surgical exploration is justified.

The importance and technique of operative cholangiography and cystic duct dissection is detailed.

The short intramural cystic duct should be excised whenever technically possible and the common duct closed with T-tube drainage.

Removal of the cystic duct stump in most cases should result in complete relief of symptoms.

The surgeon is alerted to the importance of careful, anatomical dissection of the cystic duct during cholecystectomy.

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THE SINGING DOCTORS

The Singing Doctors are igniting another bomb of satire throughout the medical profession.

After making three earlier record albums of "Medical Hit Parade" humor, the group of six Springfield, Missouri, physician-performers is releasing a fourth volume, "The Singing Doctors On Stage." Its contents include such newly composed parodies as "Those Birth Control Pills," "Medicare" and "Masters Degree," the latter a special "tribute" to the St. Louis medical researcher whose recent book, "Human Sexual Response," is a "hit" in its own right.

The Singing Doctors' purpose in selling the albums is as serious as their songs are slapstick. All proceeds help to expand the good works of their own scholarship foundation, which has to date awarded 101 grants and loans to aid the education of highly deserving but short-on-cash young medical students. The group also tours its one-hour stage show to large medical banquets around the nation, again to stimulate contributions to their scholarship fund.

Dr. Jim Brown, a 43-year-old, showbusiness-oriented surgeon, is in charge of the act's cut-uppery, serving as "star" of the new album, recorded before a convention of 1,000 medical personnel. Among his songs in the "On Stage" album is one relating to what fame can do to the humility of an obscure Ozark doctor who has won acclaim, as Dr. Brown actually has, on network television programs; it's titled "Now That I'm a TV Star (I Charge Much Larger Fees)." Still other Singing Doctors hits include "At Your Cervix," "The Menopause" and "Halitosis Beats No Breath At All."

Sold by mail, exclusively through the Greene County (Mo.) Medical Society's headquarters in the Professional Building, Springfield, Missouri, the albums are \$4.25 each, postpaid—and tax deductible.

Cow's Milk Allergy—

*Relieved by Wet Nursing: A Case Report**

JAMES E. SHIRA, Major, M.C., U.S.A., *Shawnee*

ON OCCASION every physician encounters a patient, phenomenon, or situation which, although not destined to expand medical horizons, is unusual and worthy of being reported. This paper records an instance where the ancient practice of wet nursing was successfully given current therapeutic application.

Case Report

L. B., an eight-month-old Negro male, developed nasal stuffiness, "rattling" breathing, and cough at the age of seven weeks, ten days after being weaned from the breast to a cow's milk formula. His symptoms persisted, but he continued to thrive until age three months when he began regurgitating formula after each feeding, and passing eight to ten watery, green, foul-smelling stools every day.

When examined at age three and one-half months, the infant appeared robust and well nourished but was irritable and coughed frequently. Coarse rhonchi were heard over the anterior and posterior chest. Physical findings were otherwise unremarkable. Nasopharyngeal and stool cultures were negative and sweat and serum electrolytes were normal.

Milk allergy was suspected from the beginning. A diet free of all dairy products was ordered and the patient was placed on a soybean formula as a substitute for cow's milk. Within one week all of his respiratory and gastrointestinal symptoms resolved.

The infant remained well until age six months when whole cow's milk was restarted. Two weeks later he was again coughing, "rattling" and passing loose stools. Having no money available to purchase more soybean formula and realizing that milk was the cause of her son's trouble, the patient's mother arranged to have him nursed by a neighbor who was about to wean her own infant from the breast. After two days of feeding from the volunteer wet nurse, the child was entirely well. He remained free of symptoms during the next three weeks while kept at the breast.

Through the KUMC Pediatric Allergy Service, the child's mother finally obtained more soybean formula and returned him to the bottle. The neighbor woman

was thus released from her wet nursing chores after having benefited not only her own, but her friend's infant as well. The patient continues to thrive on his milk-free diet at the time of this writing.

Comment

It is not the purpose of this report to recommend the return of wet nursing as a profession or to propose this method of feeding as the treatment of choice for infants allergic to cow's milk. Rather, it

This report is not presented for the purpose of recommending wet nursing as a choice of treatment for infants allergic to cow's milk, but to call attention to the antigenicity of cow's milk proteins for some allergic children. It describes one mother's resourcefulness in circumventing the need for cow's milk or substitute formulas in the nutrition of her allergic child.

is presented to draw attention to the marked antigenicity of cow's milk proteins for some allergic children and to describe one mother's resourcefulness in circumventing the need for cow's milk or substitute formulas in the nutrition of her allergic child.

Cow's milk allergy is a disorder of progress in food technology. It emerged into clinical importance as methods for mass production of safe supplies of milk were perfected and has increased in incidence in direct proportion to the substitution of cow's milk for human milk in infant feeding.

Although intolerance to milk and other foods had long been recognized, credit for the first description of milk allergy is given to Hamburger, who, in 1901, reported an infant who experienced anaphylaxis after a single feeding of cow's milk. During the next 15 years, several European observers described milk sensitivity, reporting not only shock-like reactions, but also gastrointestinal, respiratory, and nervous system manifestations.²⁻⁶ The first American author to comment on milk allergy was Schloss in 1912. In this paper he also reported the first use of the scratch skin test as a specific diagnostic tool in allergy. Dur-

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ing the past 50 years, many important advances in the understanding of milk protein sensitivity have been made. In spite of all this accrued information, however, treatment today is the same as always: elimination of the offending food from the patient's diet.

In contrast to the relative newness of milk allergy is the antiquity which pervades the practice of wet nursing. Prior to this century, when no adequate substitute for human breast milk was available, only an occasional infant would survive if he were deprived of his natural food. Indeed, it was considered a sacred duty of the mother to nurse the child, a duty which took precedence over all other obligations. Lactating breasts were considered one of God's blessings (Genesis 49:25) and dry breasts a great curse (Hosea 9:15). Apparently foster or wet nursing was also acceptable and taken as a matter of course as when Pharaoh's daughter employed Moses' mother to nurse the found foundling (Exodus 2:7-10). Even the grandmother might be enlisted for nursing duty as when Ruth turned her son over to her mother-in-law, Naomi, for care (Ruth 4:16).

Now that artificial cow's milk formulas are safe, relatively inexpensive and universally available, young

mothers seldom nurse their infants, and wet nurses, along with human breast milk banks, are practically non-existent. In this setting then, the case reported above was most unusual. Certainly the patient's mother must be commended for her ingenuity and her friend and neighbor lauded for her selflessness and compassion.

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Merry Christmas
and a
Happy New Year

THE JOURNAL OF THE
KANSAS MEDICAL SOCIETY

The Lippes Loop

An Intrauterine Contraceptive Device

DAN L. BERGER, M.D., F.A.C.O.G., *Mission*

USE OF AN INTRAUTERINE DEVICE (IUD) for fertility control can be traced to ancient camel drivers who inserted a small, smooth stone into each horn of the bicornuate camel uterus. Their popularity has waxed and waned through the now outmoded stem pessary to the present era of the intrauterine device made of non-reactive plastic. Further veterinary use is being made in the sacred cows of the Hindu areas of India. Experiences with the Lippes Loop in private practice with 130 patients over an 18-month period from March 6, 1965, to September 6, 1966, are presented.

Materials and Methods

One hundred and thirty unselected private patients were fitted with sizes A, C, and D of the Lippes Loop. Most were from the author's own practice, but several were referred specifically for this service. Other contraceptive methods were explained to the patient, and she made her own decision. A certain bias in explaining the various methods is admitted, but an attempt was made to keep this to a minimum. The bias was especially pronounced in patients who had reached the recommended time limitation of the several pill methods and in nursing mothers.

In order to avoid jeopardizing an existing pregnancy, the devices were inserted at the time of the six-week postpartum visit (59 cases) or before the last 14 days of the menstrual cycle. Each patient was given a prescription for ascorbic acid tablets, 500 mg., and instructed to take one four times daily for any abnormal bleeding. She was further instructed to check for proper placement of the device by palpating the threads coming through the cervix.

Results

In this series 1,105 patient months of contraception have been provided. Thirty-five patients have used the device for more than one year. Seventy-eight patients have had the device in place for more than six months.

The failures of this method can be divided into four general categories: bleeding, expulsion, cramping, and pregnancy.

Abnormal bleeding has been a common problem,

but not of major significance, as only two patients have requested removal for this reason.

There have been three expulsions at three, four and five months. Each of these occurred with an abnormally heavy menstrual period. Two of these patients had the device reinserted, and it stayed in place. One patient desired to change to the pills.

Cramping is commonly associated with sounding the cervix and insertion of the device. This again is not a major problem. Only two devices have been re-

Experiences with the Lippes Loop in 130 patients in private practice are presented. Side effects and dangers, and their management, are discussed. The Lippes Loop is an effective method of conception control. Even in the face of moderate side effects, it is generally well accepted by the patients.

moved for this reason, one about 30 minutes after insertion and one approximately six hours after insertion. Occasionally other patients have complained of cramping not associated with insertion, but this has not been severe enough for the patient to accept removal when offered.

One patient has become pregnant with the device in place. The patient had expelled her loop in February. It was reinserted later that month after a menstrual period, and she had normal periods for the three succeeding months. When first seen for this pregnancy, the threads were still protruding from the cervix but had retracted because of uterine growth.

Discussion

While abnormal bleeding is frequent with an IUD, the fact that only two devices out of the 130 inserted were removed for this reason attests to its relatively benign nature. Patients are warned that there is likely to be some spotting or bleeding for a few hours to a few days after insertion and that the first few periods may be heavier than usual. They accept this and tolerate the bleeding well. No patient has bled enough

to lower her hemoglobin significantly. Many patients who complained of bleeding steadfastly refused an offer of removal. The abnormal bleeding pattern usually consists of some spotting for a few days before or after the period.

Some patients report their periods to be one or two days longer. An occasional patient will report mid-cycle spotting. Since this bleeding is frequently in the first several periods after insertion, and since approximately one half of the insertions (59 of 130) were on the first return visit after a pregnancy, it is extremely difficult to assess how much was due to the IUD and how much may have been due to the menorrhagia commonly seen at this time. Ascorbic acid in doses of 2.0 gm. daily, although empirical, has been of help in many of these instances. Even larger doses have been used on occasion. Other workers have reported the use of ergot preparations with success and without increasing the rate of expulsion.

Expulsion is commonly noted in most series, but occurred in only three of these 130 cases. This is common in a heavy menstrual period with the passage of clots. Expulsions after the device has been in place for six months are uncommon. Many of these expulsions are not noted by the patient. In this series, one was noted by the patient. Another was not detected, but she could not palpate the threads. One partial expulsion was seen during a heavy period. Two of these were reinstated. One patient became pregnant three months later. No correlation can be made.

Successful reinsertion after first expulsion has been reported in approximately two thirds of the cases. In general, the larger the device the lower the rate of expulsion in parous women. These devices are not recommended for routine use in nullipara, as not only the expulsion rate but all other side effects are more frequent. The four size A loops in this series were all placed in nullipara.

Cramping, seen frequently at the time of insertion, is usually temporary, and responds to analgesics and rest. Of the two devices removed because of cramping, one patient was a nullipara. One nullipara is presently troubled with cramping, but she has decided not to have the device removed because the cramps are becoming much less intense. One multipara reports moderate cramping at mid-cycle, but she prefers to continue with the device.

While the intrauterine device is one of the most efficient methods for conception control, failures do occur. The one pregnancy in this series does not lend itself to statistical analysis. Enough pregnancies have been noted in cooperative studies from various centers so that an approximate 14 per cent ectopic pregnancy rate has been found in the pregnancy failure group. Alarming as this may appear on the surface, it prob-

ably means only that the device does not afford protection against extrauterine pregnancy.

Pelvic inflammation has not been seen in this series, although it has been reported in larger series. This may be treated with antibiotics, usually with the device undisturbed. In only a minority of instances is removal necessary.

Syncope at the time of insertion is noted in a few instances. This is generally mild and of short duration. Four patients in this series exhibited syncope to some degree. All responded in less than ten minutes of rest. They were then asked to sit in the reception room for about 30 minutes. In no instance did the syncope return.

Perforation of the uterus is not known to have occurred in this series; however, this complication has been reported with all of the devices. Although uncommon, this may be followed by severe sequelae. To my knowledge, no deaths have been reported, but intestinal obstruction necessitating resection has been noted. This has uniformly occurred with the closed devices, such as the Bow, rather than with the open-end devices such as the Loop or Coil. The reported incidence of uterine perforation is approximately three times lower when the devices are inserted by a gynecologist.

In order to avoid instrumenting a pregnant uterus, insertion is done only at the time of the six-week checkup, when intercourse is restricted, or in the first half of the cycle. One patient, not included in this series, presented herself for this service, stating that her last period had ended the day before. Examination revealed a soft, slightly enlarged uterus, suspicious of a pregnancy. The patient was instructed to return in two days, after a pregnancy test had been obtained. Upon her return, she stated that no pregnancy test was necessary and that she had originally misled me as to when her last period had occurred.

USE CHRISTMAS SEALS

Fight Tuberculosis

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Other Respiratory Diseases

The Nervous Patient

Management of the Nervous Patient in General Practice

GEORGE ITURRALDE, M.D., *Prairie Village*

Depression

DEPRESSION IS DEFINITELY the most important component of the problem presented by the nervous patient. It is a manifestation which is properly divided into a number of components, the manner of division differing considerably among the various authors and even among various countries. In general we can think of it as either a symptom or as a disease. An example of depression as a symptom would be that seen in schizophrenia. Examples of depression as a disease state are reactive depression and involuntional depression. The types that constitute disease states are not easily classified, nor is it easy to differentiate one from another.

Symptoms

Let us now consider the common complaints that the nervous patient brings to the office. Sleep disturbances are common and include insomnia, early awakening, and excessive dreaming. Symptoms of psychomotor retardation with feelings of confusion, "cloudy mind," difficulty concentrating, poor memory, short attention span, and difficulty in thinking and making decisions are common. Many patients complain of feeling tense and irritable. Especially disturbing are intra-aggression feelings, often explained by the patient as "feeling like I am going to explode from the inside." Other complaints are continual tiredness, "loss of interest in everything," irritability, uneasiness, and apprehension, loss of confidence, crying spells (usually without a reason), worry about oneself, decrease in libido, impotence in men, guilt feelings, vague or specific fears, the tendency to change jobs and failure of promotion, ideas of unworthiness, ideas of reference, feelings of unreality, agitation, loss of insight, feeling of having lost something, loss of self esteem (especially in older patients), dizziness, faintness, trembling, shivering, unsteadiness of the voice, manual clumsiness, and inertia.

Symptoms with a somatic reference include persistent and often intractable headache, excessive perspiration, anorexia, belching, bloating, indigestion, constipation, weight changes, urinary urgency and burning, chest tightness, pruritis ani, pruritis vulvae, amenorrhea, hives, low arterial pressure, choking feelings, and numbness and tingling of the finger tips.

Needless to say, such symptoms as these are not confined to patients who suffer from depression, but may occur in a vast variety of somatic diseases. But in a

system review of a nervous patient, a host of symptoms may be found to be related to the whole emotional compensation. Only when this is recognized may these patients be referred for proper psychiatric care.

The problems that surround the management of nervous and anxious patients are of daily concern to the general practitioner. These are the individuals who present those disturbing symptoms which we classify under the headings of anxiety and depression. Although these two types of reaction are distinct phenomena, it is convenient to group them together in a practical discussion of the management of the nervous patient.

Discussing the Problem With the Patient

We know that even more symptoms than these occur and that each patient tends to give a different significance to each symptom. The main thing to do is to let the patient explain and enumerate the symptoms and wait and see the value he assigns to each. Every effort should then be made to determine whether these are organic symptoms or merely functional. Most of the time, we find that many or all symptoms have no organic correlation. We are all familiar, for example, with the hysterical phenomenon described as sock or glove numbness. This is a classic illustration. The second step is to determine the symptoms which are most important. From there we can go back and explore each one individually. For instance, when the patient complains of inability to sleep, we want to know when it started, how long he has been feeling this way, if he has taken any medication the last few months, if he has any early awakening, if his sleep is sound and he feels rested, or if he feels unusually tired when he wakes up.

In unusually anxious patients, we should be careful of the potential suicidal case. Most of them do not mention this, and after a few minutes interview it is usually perfectly proper to ask the patient if he feels so low or so anxious that he has any ideas of putting an end to his life. Usually the patient who has this feeling will admit it and feel greatly relieved to know that he can share these problems with his doctor. From there we can explore and see if these are

just passing thoughts or if the patient has actually been seriously contemplating suicide. In such a case, the doctor obviously must decide whether the patient needs immediate hospitalization or if he should be referred to the psychiatrist or both.

The next step is to determine how much depression we are dealing with and how much anxiety. Even in classical textbooks the two clinical entities are found in different chapters. Anyone with experience with this kind of patient knows that the two are very much linked and interwoven. This point is quite important because it is vital to successful treatment. Needless to say, the family doctor will prefer that formal psychotherapy be conducted by a physician trained in this field. With the advent of a number of useful drugs, however, the doctor is in a position to relieve many of the symptoms of his nervous patients.

Use of Drugs

The treatment of nervous patients was greatly facilitated by the introduction of the antidepressive drugs. However, more and more clinicians have found that giving an antidepressive alone to a depressed patient does not help immediately or that the results are not as good as expected. They will find that such patients are much better when the antidepressive drug is used with a tranquilizer. As a general rule, it is good to start with a low dosage of both the antidepressive and tranquilizer and from there determine which one should be increased. We should attempt to obtain fairly quick results and, if possible, to make the patient comfortable in the first 48 hours. This makes the patient-doctor relationship closer and helps the physician gain the patient's confidence. Later one can gradually increase or decrease one or both drugs according to the response of the patient.

To decide the kind of antidepressive drugs to be used, the rules are the same as in general medicine. It is advisable to become well acquainted with one or two antidepressive agents. When the physician is familiar with a few of them, he becomes more skillful in determining how long it will take with each patient for the drug to have desired results. Also he should be familiar with the side effects and be careful in combining one drug with another. When the patient is apparently more anxious than depressed, it has been my experience that the drug of choice is generally amitriptyline. On the other hand, in patients past 40 whose outstanding symptom appears to be depression in the retarded form, we find that imipramine gives better results. This drug, however, has the disadvantage of taking longer to act.

A new and excellent drug is desipramine. It acts much more quickly than imipramine but has the disadvantage that it does not help the patient to sleep. Where this action is desired, amitriptyline may be found more effective. This drug is often especially

helpful in patients with somatic complaints.

As far as tranquilizers are concerned, the drug of choice for the patient who appears in good contact with reality and who can apparently control himself very well is diazepam. It is entirely up to the judgment of the clinician, however, as to which drug he chooses and how he prefers handling each particular patient.

For patients receiving an antidepressive who are over 40 years old or for younger patients in whom psychosis is suspected more than neurosis (such as in postpartum depression), we prefer one of the antipsychotic drugs or phenothiazines. One can use chlorpromazine or perphenazine, starting with small doses and increasing as necessary.

The monamine oxidases (MAO) inhibitors are not recommended for general use. These potent antidepressive drugs are still controversial even in the hands of those most experienced in their use. Anyone who takes a few minutes to read their indications and contraindications can see how difficult it is to use these drugs and how serious are potential side actions. The medications previously mentioned are not only as potent as the MAO group but are much safer, prompter in action, better tolerated, and easier to handle. They have the added advantage of being effective in psychosomatic complaints. It is worth repeating that it is better to become familiar with one or two antidepressives and one or two tranquilizers than to use a wide variety of drugs with which one is not familiar. The physician is then well aware of the indications, contraindications, and side effects. Thus the general practitioner is in a good position to institute effective treatment and to make unnecessary the referral of many of these patients to a psychiatrist or medical center.

A final word should be given to the problem of insomnia. Success here depends on the judicious use of hypnotics. The alcohol derivatives like ethchlorvynol are especially effective. They have a quick action, and when the patient wakes up in the morning he feels rested and refreshed. It should be kept in mind that the most critical time for the depressed patient is when he wakes up in the morning. This is when he usually feels especially depressed and tired.

GENERIC AND TRADE NAMES OF DRUGS

Amitriptyline	<i>Elavil</i>
Chlorpromazine	<i>Thorazine</i>
Desipramine	<i>Norpramine</i>
Diazepam	<i>Valium</i>
Ethchlorvynol	<i>Placidyl</i>
Imipramine	<i>Tofranil</i>
Perphenazine	<i>Trifalon</i>

Pseudomembranous (Staphylococcal) Enterocolitis

—A Case Report Following Elective Cataract Extraction in a 45-Year-Old Female

ROBERT E. DELPHIA, M.D., *Olathe*

Introduction

FOR MANY YEARS the disease entity pseudomembranous enterocolitis has struck fear in the hearts of surgeons, internists, members of house staffs, and all those associated with postoperative care of surgical patients. Its etiology, until recently, was very confusing. Shock, trauma, infection, and vascular abnormalities have been considered possible etiological agents.

Prohaska,¹ in an excellent treatise in 1961, carefully outlined the etiology and pathology of this disease and pointed out that in most cases, *Micrococcus pyogenes* (*Staphylococcus aureus*) could be isolated from the stool. The earliest report incriminating *Staphylococcus* was published in 1948 by Kramer. Though *Staphylococcus aureus* has been isolated from the stools of most of the reported cases since 1948, there have been several reports in which the organism was not found and in which the clinical story and the autopsy findings were typical of pseudomembranous enterocolitis. Dearing, *et al.* reported 11 cases in 1960 in which *Staphylococcus aureus* was not cultured from the stools, though there was ample evidence of the presence of the disease in the colon at autopsy.

The disease has been observed after operations other than on the intestine. Dixon and Wiseman reported development of necrotizing enterocolitis following operations on the brain, uterus, breast, gallbladder, and stomach. Prohaska, Long, and Nelson⁵ reported it after simple cholecystectomy, and after gastrojejunostomy. In a series at the Mayo Clinic it was noted that of 94 cases of postoperative pseudomembranous enterocolitis, 41 were associated with colonic resections for carcinoma, 11 with gastric resection, nine with cholecystectomy, and seven with carcinoma of the stomach.⁶ The disease has been observed where there had been no antecedent operation. In these cases, obstruction of the colon, cardiac disease, and infections were the associated pathological conditions.⁷

The clinical course of pseudomembranous enterocolitis is protean in its manifestations. Usually there is

lethargy, abdominal pain, and weakness at the onset. Abdominal distention, fever, and hyperperistalsis are frequently encountered. Leukocytosis; profuse, green, watery, rice-water type diarrhea; cellular debris, and fragments of pseudomembrane are often noted. The stools are usually high in protein content with an associated decrease in serum proteins. Shock of some

This case serves to point up the fact that although pseudomembranous enterocolitis is usually a complication of major surgery, it may and does occur following many so-called minor procedures.

degree usually occurs. Diagnosis can usually be established by the presence of abdominal distention, diarrhea, hyperperistalsis, and x-ray findings typical of paralytic ileus.

The treatment usually employed is the conventional management of shock, corticotropin (*ACTH*), and often the discontinuance of any antibiotics. In the management of severe cases, electrolyte replacement is complicated by excess protein loss through the bowel.

Case Report

The patient, a 45-year-old white female, had a left cataract extraction one year after having had a right cataract extraction. The procedure was done under general anesthesia with intubation and the use of halothane (*Fluothane*). Her admission laboratory work showed 11.8 gm. of hemoglobin, with a 38 per cent hematocrit, 9,400 white cells with a normal differential, blood sugar of 84 mg./100 ml., and a blood urea nitrogen of 15 mg./100 ml. The urine was normal.

Four hours after surgery, the patient developed a temperature of 103°. Chest x-ray was normal. Examination of the chest revealed the presence of scattered rales in both bases. Antibiotics were withheld.

That evening she developed sudden tachycardia, tachypnea, severe abdominal pain, and shock, all within minutes. It was necessary to do a cut-down to start intravenous therapy. A tentative diagnosis of septic shock was entertained. The patient's blood pressure was maintained for the next three days with metaraminol (*Aramine*) by intravenous drip.

Medical consultation was obtained, and it was thought the diagnosis of septic shock seemed most likely. X-ray the following day showed the presence of a pneumonitis in both bases. A leukocytosis of 62,000 was reported with 36 segs, 41 stabs, 18 lymphs, and 5 monos. Antibiotics, consisting of streptomycin two grams per day with four grams of chloramphenicol daily, were given. On the third day the patient developed profuse diarrhea, abdominal distention, and hyperperistalsis. The x-ray showed evidence of adynamic ileus. Total serum proteins were 3.3 gm./100 ml., albumin 2.24, and globulin 1.06. Massive doses of cortisone, three units of dextran (*Gentran*), and four units of normal human serum albumin were given. The stools were profuse, watery, and light green. Stool culture was obtained two days after the onset of antibiotic therapy. Daily serial electrocardiograms were taken. They showed no evidence of myocardial damage. The enzyme studies, leucine dihydrogenase (LDH), and transaminase, were normal at all times. Forty-eight hours after the onset of shock, abdominal distention, diarrhea, and near demise of the patient, 40 units of ACTH were given in support of the large doses of cortisone that were necessary to treat the shock. It was noted that there was a decrease in the amount of Aramine necessary to maintain the blood pressure approximately three hours after the use of the ACTH. At this point all antibiotics were discontinued and ACTH in 40 unit doses was given every six hours. Erythromycin was started intravenously and the second stool culture was ordered.

The patient's response from this point forward was quite remarkable. Aramine which had been used in a concentration of 50 mg. per 1,000 ml. (given at the rate of as high as 50 drops per minute and as recently as 12 hours after the initiation of ACTH) was not needed 12 hours after the initiation of ACTH therapy. A hydrocortisone preparation (*Solu-Cortef*) had been given in 100 mg. doses every four hours for the 24 hours preceding the initiation of ACTH therapy. Only 100 mg. were given in the following 24 hours. By the end of the fourth day of illness, the patient's white count had dropped to 18,900 with 78 segs, 12 stabs, and 10 lymphs. Her hemoglobin was 12 gm. and the protein had returned to a total of 6 gm./100 ml., with a ratio of 2:1. Spinal tap was done on the

first day of illness and it showed normal pressure. Cell analyses were normal.

One point that may be significant is that in careful questioning of the patient after the ordeal was over she did admit that she had had burning on urination the week before admission to the hospital. She was afraid to call a doctor for fear that the surgery would be cancelled. Therefore, she simply took some sulfa tablets that had been given to her on a previous occasion.

Discussion

Though the diagnosis of pseudomembranous enterocolitis in this case was not supported by bacterial culture, clinical behavior of this patient is quite classical of this disease. The diagnosis was based on the presence of diarrhea, transient fever, marked abdominal distention, hyperperistalsis, and paralytic ileus. It is significant that her response to ACTH was dramatic.

GENERIC AND TRADE NAMES OF DRUGS

Corticotropin	<i>ACTH</i>
Dextran	<i>Gentran</i>
Halothane	<i>Fluothane</i>
Hydrocortisone	
Succinate Sodium	<i>Solu-Cortef</i>
Metaraminol	<i>Aramine</i>

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Beware of . . .

. . . Poisonous Kansas Weeds

FREDERIC SPEER, M.D., *Mission*

IN AN AGRICULTURAL STATE like Kansas, weeds are a problem of the first magnitude. Their most obvious and serious effect is their interference with the growth and water supply of grains, grasses, fruits, and vegetables. Many are poisonous to animals, causing serious losses to stockmen. The hay fever plants, especially the ragweeds, cause tremendous suffering to the estimated 200,000 Kansans of all ages who suffer from hay fever and asthma. Many weeds by their spines, burs, and stubble cause injury to children and animals. Poison ivy, which grows lushly throughout most of the state, causes our most severe allergic dermatitis. Fields and roadsides of dead weeds are tinder for the motorist's discarded cigarette butt and the source of destructive prairie fires. The estimate that weeds cause an economic loss in the United States of three billions of dollars annually is conservative.

Another weed problem is human poisoning. This was a fact of life to our plains Indians and to the early settlers, close as they were to nature in the raw. The problem is now distinctly minor, but it is so little known, even among physicians, that a discussion of our poison weed situation is worth while.

Before proceeding to a discussion of toxic weeds, it is well for us to remind ourselves that many other sources of poisoning are far more important. These sources include drugs, household chemicals, toadstools, insecticides, herbicides, traffic and industrial fumes, radioactive fallout, carbon monoxide, spider and snake bites, industrial solvents and chemicals, botulinus and staphylococcus toxins, lead, and nitrites. Also of more importance than weeds are various cultivated plants. A list of these is given in *Table 1*.

Many weeds are potentially poisonous but are too rare, inaccessible, foul smelling, prickly, or otherwise repellent to cause trouble. The following five poisonous weeds, however, are sufficiently attractive to the unwary, especially children, to be important. This discussion will be confined to these five.

Jimsonweed

When the subjects of James I colonized North America, their first permanent settlement was Jamestown, Virginia. Forced as they were to live off the land, they were obliged to experiment with local

Although other sources of poisoning may be far more important, the five poisonous weeds discussed here are sufficiently attractive to the unwary, especially children, to be of consequence.

TABLE 1
POISONOUS CULTIVATED PLANTS

Plants	Poison Part
* Elephant ear	Bulb
* Narcissus	Any
* Four o'clock	Root, seed
Columbine	Berry
* Cyclamen	Tuber
* Ivy	Leaves
* Potato	Seeds, sprouts
* Pimpernel	Any
* Oleander	Leaves
* Lily-of-valley	Any
* Burning bush	Leaves
Sweet pea	Stem
* Jimson weed	Any
* Rhododendron	Any
* Dumb cane	Any
Spider lily	Bulb
* Iris	Underground stem
* Pinks	Seed
* Mock orange	Fruit
* Spanish bayonet	Root
* Bittersweet	Berry
* Castor bean	Seed
* Foxglove	Leaves
* Scotch broom	Seed
* Bluebonnets	Seed
* Tulip	Bulb
* Mountain laurel	Any
* Monkshood	Root

* Can be fatal if taken in quantities which a child might eat.

Courtesy of the Kansas State Department of Health.

plants, many of which were completely new to them. One of these appeared to be suitable for greens and was so used. It proved to be a dangerous poison, and from the deaths that occurred, it came to be called Jamestown weed, later jimsonweed (*Figure 1*). It is the well known pharmaceutical plant, *Datura stramonium*, a member of the nightshade family and a source of atropine, hyoscyne (scopolamine), and hyoscyamine. The alkaloids are especially concentrated in the seed. No physician need be told that these are among the most violent poisons known.



Figure 1. Jimsonweed (*Datura stramonium*)

Jimsonweed is a tall, smooth, spreading, vigorous, ill-smelling plant with large, oak-like leaves. It grows almost anywhere, especially in abandoned farmyards and vacant lots. The fruit, in spite of being prickly and unattractive, sometimes appeals to children. Although they may be particular about the foods their mothers prepare, children are sometimes attracted to these unlikely "thorn apples." The type of poisoning is, of course, typical atropinism and may be fatal. It has been suggested that diagnosis may be aided by observing the mydriatic action of the patient's urine on the eye of a cat or other laboratory animal.⁴

It is worth mentioning in passing that many other members of the nightshade family are poisons. Several wild nightshades grow in Kansas, but they are neither obvious nor common. The leaf of tomato is highly toxic as are potato leaves and sprouts. The poison in the latter case is solanine. Tobacco, to which most adults and many children are addicted, is, of course, the source of the powerful toxin, nicotine.

The malign effects of the abuse of tobacco are now too well known to call for more than passing comment in this discussion.

Marijuana (Hemp)

No noxious plant has a more exciting history than marijuana, *Cannabis sativa* and *C. indica* (*Figure 2*). Introduced into the United States in the Omaha, Nebraska, area as a source of hemp rope, the plants soon escaped to become common weeds of the Midwest. The hemp industry was abandoned in 1955, but the weed is here to stay. Where prevalent, it causes severe hay fever and asthma and is a source of a dangerous narcotic.

Although the use of marijuana as a drug is widespread, Kansas does not seem to be a source of supply to users. However, there is no reason why a knowledgeable addict or pusher might not undertake a do-it-yourself project with the wild plants in this area.

Marijuana is dioecious, that is plants are either male (staminate) or female (pistillate). The latter is the source of the active principle found in a resin obtained from the flower. It grows in low places, along railroad rights-of-way, and roadsides. Possession of the plant or its products is, of course, forbidden by law.



Figure 2. Marijuana (*Cannabis sativa*)

Those who use *Cannabis* do so by inhaling the smoke of cigarettes called reefers. There is resultant tachycardia, slight rise in blood pressure, diuresis, dryness of the mouth, and frequently nausea, vomiting, and diarrhea. The subjective effects depend on the personality of the user. The most common reaction is the development of a dreamy state with free flow of ideas. Perception is disturbed, and time seems to pass slowly. Larger doses may cause hallucinations, exaltation, excitement, and pseudo-euphoria.²

Pokeweed

A common perennial plant in Kansas is poke or pokeweed *Phytolacca americana* (Figure 3). It is a tall plant with long, smooth leaves, which, with the stem, turn brilliant red in early fall. It produces small berries in racemes, which have been used in making pies and for preparing a crude ink.

The most toxic part of the plant is the root, but some poison is found in the leaves. The berries seem to be harmless. The young leaves and shoots, if properly prepared, are said to make delicious greens, and the weed hunter may happen on a plant from which these parts have been harvested.

Symptoms reported from poisoning from pokeweed include burning in the mouth, abdominal cramps, vomiting, diarrhea, visual disturbances, weakened

respiration, and prostration. Death has been reported from eating the root.⁴

White Snakeroot

In late summer, the roadsides and fields of the Midwest are rank with such coarse and ugly plants as ragweeds, pigweeds, cocklebur, smartweed, and fox-tail. But scattered here and there are some remarkably beautiful plants like sunflower, goldenrod, black eyed Susan, chicory, cup plant, coneflowers, and Jerusalem artichoke. These are the composites. Their domesticated relatives include the asters, marigolds, chrysanthemums, dahlias, and lettuce. Among these late summer composite weeds none is more beautiful than white snakeroot, *Eupatorium rugosa* (Figure 4).

White snakeroot grows best in shaded areas, and the motorist may see it in great abundance in September as he drives along our highways. In spite of its beauty and harmless appearance, it has probably caused more deaths than any other American wild plant. Before it was shown to be the cause of serious poisoning, it had already caused extensive illness and death among the early settlers of the Mississippi valley.⁵ Where poisoning was especially common, as many as half of the inhabitants of villages were af-



Figure 3. Pokeweed (*Phytolacca americana*)



Figure 4. White Snakeroot (*Eupatorium rugosum*)

fect, causing extensive settled areas to be abandoned.⁴

The syndrome caused by *Eupatorium* is usually known as milk sickness. Man does not contract the disease directly from the plant but from milk given by cows who feed on it. The cows themselves often are obviously affected, a state known as trembles. It is also thought that meat from affected cattle is toxic.

Milk sickness is now a rarity, chiefly because herd milk makes for dilution of milk from any cow that might be affected. That a family cow allowed to browse in woodlands might still cause trouble is obvious, and cases still occur.³ Symptoms include weakness, anorexia, abdominal pain, intractable vomiting, and muscular tremors. Dehydration leads to a characteristic acetone breath. Terminal symptoms are delirium followed by coma and death.

Poison Hemlock

By pooling their knowledge, historians and toxicologists have determined that the poison cup given to Socrates contained an extract of a plant which is one of our common Kansas weeds, poison hemlock, *Conium maculatum* (Figure 5). It is a relative of carrot, parsnip, parsley, and a number of delicious spices. Those familiar with the wild carrot, Queen Anne's lace, will have an accurate idea of the appearance of this dangerous weed. Flowers are white and are arranged in lacy, flat topped heads. The leaves look somewhat like parsley, and the stems are smooth and spotted with purple.^{1, 6}

A closely related plant of equal toxicity is water hemlock, *Cicuta maculata*. It prefers wet areas like



Figure 5. Poison Hemlock (*Conium maculatum*)

the edges of ponds, and is hence less common in our state. The points of difference between the two plants are summarized in Table 2.

The symptoms of poisoning with *Conium* are transitory stimulation followed by severe nervous system depression, paralysis, and coma. The ancients considered its use in execution to be humane, the

TABLE 2
COMPARISON OF POISON HEMLOCK
AND WATER HEMLOCK

	Poison Hemlock (<i>Conium</i>)	Water Hemlock (<i>Cicuta</i>)
Height	Up to 10 ft.	Up to 7 ft.
Stems	Smooth, hollow, purple streaked	Smooth, hollow, purple spots.
Habitat	Roadsides, waste places. Common.	Wet areas usually.
Leaves	Large, smooth, parsley-like, parsley odor if bruised, up to 1 ft. long.	Leaf stems surround main stem. Leaves pinnately compound, up to 2½ ft. long. Secondary veins end in notch of leaf. Mousy odor.
Flowers	White in compound umbels, June to August.	Similar, distinguishable from <i>Conium</i> only by a botanist.
Root	Parsley-like taproot.	Rootstocks in cluster, divided into hollow chambers.
Poison part	All parts, especially root.	Leaves especially, but also roots and seeds.

"gas chamber of antiquity." *Cicuta*, on the other hand produces the more violent symptoms of delirium and convulsions, commonly emerging in a rapidly fulminating pattern leading to death.

Drawings used by courtesy of the University of Illinois (Datura, Phytolacca, Eupatorium) and the Kansas State Board of Agriculture (Conium and Cannabis).

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MEDICAL EVALUATION OF DRIVERS

Recognizing the role of the driver in automobile accident prevention, the Industrial Medical Association has released information on the selection of persons for commercial vehicle driving who are least likely to be involved in accidents.

Health conditions which should be investigated by the industrial physician in the selection of employees for commercial vehicle and transport driving are set forth in a new publication available from the Association. The report recommends that drivers be carefully examined prior to employment and that periodic examinations be performed every two years on persons under 45 years of age, and annually on those over 45. It is stressed in the report that underlying all considerations in the selection of vehicle drivers is the maxim that anyone with a condition that could suddenly incapacitate him should not drive a vehicle. In a discussion of physical and mental standards for commercial drivers, the following points are brought out:

1. Employees with emotional and psychiatric conditions are most difficult to evaluate since many are extremely capable persons except at certain times of stress and strain. Anyone who becomes too involved in his problems may develop actual depression and psychomotor retardation with slowed reflexes and become indifferent to traffic and the world about him. It has been found that persons exhibiting youthfulness and egocentricity, aggressiveness, antisocial trends, and social irresponsibility contribute to increased accident experience.

2. Safe employment of employees with cardiovascular defects requires a thorough knowledge on the part of the industrial physician of both the cardiac

status of the employee and the demands of the job. Some cardiac employees might be able to drive without difficulty, but would not be able to lift or carry heavy objects, which is sometimes a part of a driver's job. Fatigue and the possible emotional stress of driving in heavy traffic also may produce complications.

3. Neurological defects that involve convulsive disorders and any neurological diseases that may affect muscular control and coordination are conditions that should warrant rejection of an employee for driving.

4. While loss of hearing has not been considered a serious defect, some recent work has indicated that individuals with hearing loss are involved in a larger number of accidents than a similar group with normal hearing.

5. Adequate vision for safe driving is now considered to be 20/40 or better. In addition, an employee must be able to see at an angle of 140 degrees or more, have normal balance of eye muscles, good depth perception and adaptation to darkness. Persons with worse than 20/70 corrected vision in the better eye should not drive a commercial vehicle.

6. The level of intelligence for a commercial vehicle driver should be at least that of a grade school graduate and preferably that of a high school graduate. It has been found that individuals with low intelligence are prone to increased accidents.

7. Any type of syncope or fainting would make a driver candidate unsuitable.

8. The possibility of reactions from certain types of medication taken by an employee should be thoroughly investigated by the industrial physician to determine the person's ability to tolerate the drugs without impairing his ability to drive with safety.

If a diabetic employee requires insulin, he should not be permitted to drive a commercial vehicle because of the possibility of hypoglycemic reactions. If the diabetes is controlled by diet alone, he may drive provided he is under regular periodic examination by his physician and is adequately controlled.

The report emphasizes the importance of the experience and judgment on the part of the industrial physician, who, in spite of guides such as this report, must evaluate each case individually. The report, entitled "Medical Evaluation of the Commercial Vehicle Driver," was prepared by the Industrial Medical Association's Committee on Medical Aspects of Driver Safety, under the chairmanship of Harold Brandaleone, M.D., New York City. It has been approved by the Board of Directors as an official policy statement of the Association. Copies of the report are available from the Industrial Medical Association, 55 East Washington, Chicago, Illinois 60602, at 30¢ per copy.



Medical HISTORY

An Account of the University of Kansas School of Medicine

RALPH H. MAJOR, M.D., Kansas City, Kansas

(Continued from November)

The Chancellor asked me to write some outstanding medical men in the country and ask them for suggestions in regard to a permanent dean. I wrote only one letter. This physician of national and international reputation was quite familiar with the conditions leading to the dismissal of Dr. Sudler. His reply was a blistering one, to the general effect that he would not advise his worst enemy to take the position. After I showed this letter to Chancellor Lindley, he agreed that it did not seem a propitious time to look for deans.

Soon after Dr. Wahl's appointment as acting dean, Mr. Carney, the chairman of the Board, arranged, as a gesture of harmony, a meeting of the Governor and the medical faculty, "a social get-together," as he described it. We all assembled in the hall of the administration building and then proceeded in a single file into the large conference room, where Mr. Carney stood ready to introduce the faculty. The first one up was Dr. Wahl.

"Dr. Wahl," said Mr. Carney.

"Hello, Wahl," the Governor said, shaking his hand.

"Dr. Orr," said Mr. Carney.

"Hello, Orr," said the Governor.

The third in line was Dr. Franklin E. Murphy. As his turn came, he walked forward with his habitual dignity, bowed slightly, and said in an even tone heard by all in the room.

This is the eighth of approximately twelve installments of Dr. Major's account of the early days of the University of Kansas School of Medicine.

"Doctor Murphy."

The Governor flushed slightly, and it was noted that after the next introduction he said,

"Dr. Haden."

This was, I think, the only time the Governor met the faculty. But, while we saw little of him, we heard and read a great deal of him since the newspapers found him excellent copy, just as photographers find some people very photogenic.

The next major excursion of the Governor into the newspaper headlines was far more spectacular than any previous efforts. On December 27, 1924, the Governor, through his Board of Administration, dismissed the Chancellor and simultaneously dismissed Mr. Lambertson who had opposed the Governor's wishes. Mr. Lambertson later told me the details of this meeting of the board.

Before the meeting was formally opened, the Governor told the board he had decided to dismiss the Chancellor "for good and sufficient reasons" and wished the whole matter disposed of in a proper manner. After the resolution was introduced, he would take a vote on the proposal. "Carney will vote yes, Lambertson will vote yes, and you, Williams, who live in Lawrence, will vote no, which will save you any possible local unpleasantness." When the vote was put, Carney voted yes, but Lambertson, to the surprise and intense anger of the Governor, voted no, so that Williams had to vote yes.

The Governor glared at Lambertson, and growled, "You're fired." This ended Mr. Lambertson's career as a member of the Board of Administration.

If the dismissal of Sudler had caused a storm, the dismissal of the Chancellor produced a hurricane.

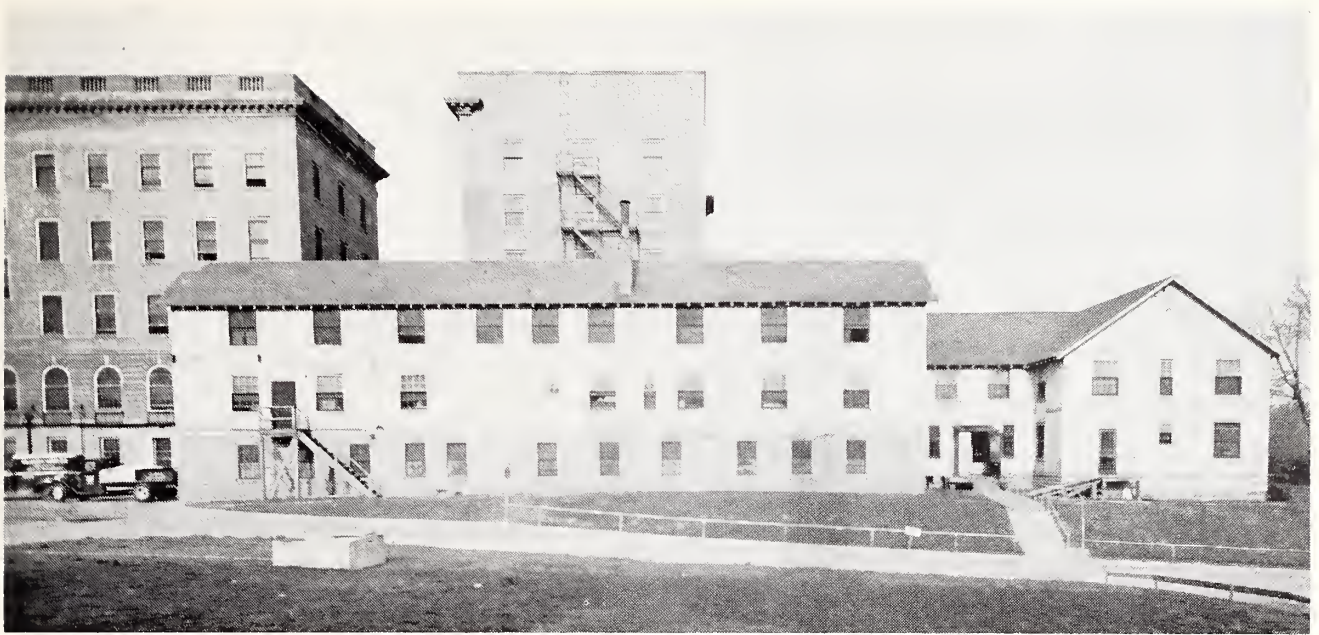


Figure 38. Temporary Outpatient Building "Barracks"

Denunciation came from every quarter. The press unanimously denounced the Governor, as did alumni associations, chambers of commerce, and many other organizations. If the Governor had any champions, they were not very vocal.

There was much speculation regarding the Governor's motives. The Chancellor, himself, gave me this interpretation. Governor Davis, he said, was confident of re-election and had planned to reward his supporters with jobs in the University. One was to be dean of the law school; another dean of the engineering school; a doctor friend dean of the medical school; and down the various grades to the positions of fireman, custodian and janitor. As the first obstacle to these future plans, the Chancellor was removed.

This explanation, at first, sounds fantastic. However, when Dr. Sudler opposed the appointment of a man "who formerly was cashier and cigar clerk in a restaurant" as superintendent of the new hospital, Governor Davis was furious and denounced Sudler to me. I asked the Governor what the appointee's qualifications were. "Qualifications?" snorted the Governor. "Nobody in Douglas County worked harder for me in the last campaign."

The closing months of the Governor's term brought no great credit to him or to the state of Kansas and had better be passed over in silence. Davis was roundly defeated in the fall election; his successful rival, Governor Paulen, requested the Board of Administration to re-instate the Chancellor, which they did. Quite an about-face for Mr. Carney and Mr. Williams. The Governor used all his influence to abolish the Board of Administration and restore the old system of Regents. This change was carried out by the next session of the legislature. A measure, approved

on March 7, 1925, established a Board of Regents, consisting of nine members, appointed by the Governor. They were to have charge of the University of Kansas, the Kansas State Agricultural College, and the teachers' colleges at Pittsburg, Emporia and Hays. Since that time, the University has been governed by a Board of Regents. The new law, however, made no reference to the political affiliations of the Regents, and later, when a Governor packed the Board of Regents with members of his own political party, the legislature amended the statute, providing that neither political party should have a majority of more than one.

The idea behind the creation of a Board of Administration may have been a good one, but, in practice, it simply did not work. Its great weakness, the susceptibility to political control, which its critics had long before pointed out, was now all too clearly demonstrated. No one, at least in University circles, mourned its demise. The Medical School has had many periods when its spirits were low and when the future looked black, but it has never passed through a period when its morale was as low as it was during the second half of the year 1924.

With public confidence in the state government restored, the Medical School began to take heart once more and attempted to solve the existing problems and to plan for the future. The problems, while difficult to resolve, were simple to state—the need for more buildings and larger appropriations.

Sometime before, the nurses, who were housed here, there, and elsewhere in rooms near the hospital, had complained bitterly and justly that they had no recreation hall, no assembly hall, no place where they could play basketball, dance or dine. On presenting



Figure 39. Research Laboratory

their request to the Board of Administration in the fall of 1924, Dr. Wahl had been allotted \$8,000, with which he built a large frame hall with a high ceiling, admirably adapted to basketball. In the course of time, however, this hall was less and less used, and, four years later, it was converted into a research laboratory (Figure 39) by building partitions which divided the large hall into a number of smaller rooms. As the partitions were only some seven or eight feet high, ventilation was excellent. These new quarters made it possible to remove the entire laboratory and its equipment from the second floor of the powerhouse—a move we all welcomed; none more than Dr. Haden. The old laboratory quarters became a laundry, where new laundry equipment was installed. Previous to this time, all the laundry had been sent by truck to the state penitentiary at Lansing, an arrangement we never publicized.

Dr. Weber (Figure 40), Dr. Haden and I worked in our new laboratory and enjoyed it very much. It was wonderful not to spend the first half hour dusting off our tables each morning before beginning our work, as we had done in the old laboratory. Dr. Clarence J. Weber, a Ph.D. graduate of St. Louis University, joined our staff in 1926 and soon made numerous important contributions to medical literature as well as supervising the chemical work in the clinical laboratory. As the years went on, Clarence's interest in medicine was steadily quickened so that he became a medical student and received his M.D. in 1939. During these years, he was a great source of strength and inspiration to the Medical School.

One day in 1927, I was called to Leavenworth in consultation to see a patient at the federal penitentiary. He proved to be Col. Charles R. Forbes, former head of the Veterans' Bureau, who had been found guilty of some extensive infractions of the law and whose exploits had been thoroughly aired by the

press throughout the nation. One of the doctors, with whom I saw him in consultation, was an even more prominent character, Dr. Frederick A. Cook. Not many years before, Dr. Cook had been feted and dined both at home and abroad as the discoverer of the North Pole. He later went into the oil business and had gotten into trouble. Dr. Cook and I decided that our patient needed hospitalization. He was taken to the Bell Memorial Hospital and stayed there several days in a hospital room with a guard outside his door day and night. No inkling of this ever appeared in the newspapers, which was a tribute to the discretion of the hospital staff and personnel.



Figure 40. Dr. C. J. Weber

Meanwhile, negotiations with the Rockefeller Foundation were renewed with the hope that the Foundation would support a building project, but, once more, the old problem of a divided school raised its head. This old controversy, like all controversies, brought out a sharp diversity of opinion. Those who favored a united school in Lawrence pointed out that both Michigan and Iowa had united schools on a university campus in relatively small towns. Those favoring a united school at Kansas City stressed the advantages of locating the school in a large city, where there was an abundance of clinical material, especially of acute disease. They pointed to the University of Nebraska at Lincoln with the medical school in Omaha, and to Colorado (which had received a handsome gift from the Rockefeller Foundation), where the university was located at Boulder, while the medical school was in Denver. While this controversy was at its height, the Foundation announced officially that it would allocate no further funds for the construction of medical school buildings. A truce was declared, and the two factions in the Medical School agreed that, at least for the present, Kansas would have a divided school, part of it in Lawrence, part in Kansas City. But the opposition to divided schools seems to have grown with the years. At present, there are 89 medical schools in the United States and Canada, only four of which are divided schools—Stanford University at Palo Alto and San Francisco, the College of Medical Evangelists at Loma Linda and Los Angeles, the University of Indiana in Bloomington and Indianapolis, and the University of Kansas at Lawrence and Kansas City.

This controversy was partly responsible for the lack of appropriations for new buildings at the Kansas City site. I recall one occasion when a delegation from the Medical School was invited to meet the Ways and Means Committee of the State Senate, where all ap-

propriations originated. After the needs of the Medical School were presented, in which the need for new buildings was stressed, one committee member asked, "Where should this new medical plant be built?" The champions of Lawrence were eloquent in their pleas for Lawrence, while the spokesmen from Kansas City were equally eloquent. "Well," observed the Senator, "how can we recommend an appropriation when you don't seem to know where you want to build the buildings." His logic was unassailable. We departed crestfallen.

Five years had now passed, and the only permanent building on the new site was the administration building. Senator Getty of Wyandotte County, through his friendship with Dr. Gray, became interested in the Medical School and, after one visit, was convinced that we needed new buildings. When the next session of the legislature met, Senator Getty brought down the Senate Ways and Means Committee to go through the hospital and to listen to our requests. On their return to Topeka, this committee recommended the erection of two buildings, a recommendation subsequently passed by both Senate and House. Thus came into being Ward B, which with equipment cost \$260,000, and the nurses' home (*Figure 41*), costing \$130,000. They were not, however, so easily secured as this account might suggest. The day Senator Getty appeared with his committee, two physicians appeared before the committee, urging them not to build anything on this site. One of the members of the committee, himself a physician, told me that he had been impressed by their arguments and was going to vote against the building project. When I told Senator Getty of this conversation, he said quite positively, "Senator So-and-So has had more drinks than he has votes. The committee is going to vote for the buildings."

(To Be Continued Next Month)



Figure 41. Nurses' Home

The President's Message

DEAR DOCTOR:

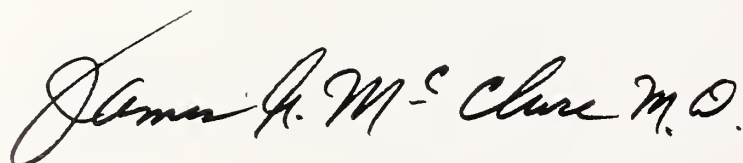
I extend to each of you my very best wishes for a happy holiday season. As I write this I think especially of the physicians and their wives, hundreds of you, I have had the pleasure to meet during the Council District sessions; of the additional hundreds who serve in committees, on appointed boards, and through your local societies. I also send this greeting to all of you I hope to meet before the time of our annual session. And, I wish you a wonderful New Year.

The past twelve months have been trying. The future is filled with anxiety. As I contemplate this prospect I have a warm admiration for the doctors of Kansas, for your dedication, for your unswerving integrity and for your professional service to the people of this state.

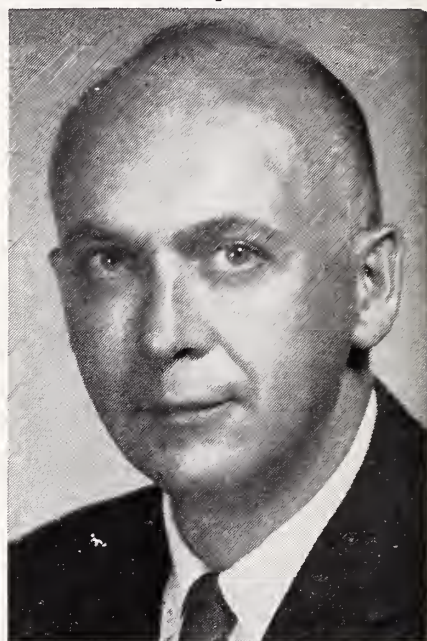
New Year's resolutions may be maudlin, but consider this one with me: I shall make a special effort to demonstrate my personal interest in the welfare of every patient who trusts his health to my care. I will accept every opportunity to advise and cooperate with individuals, agencies and organizations upon any project that will give the people of Kansas high quality health care with economic efficiency, and which will preserve for the profession of medicine its dignity and for the science of medicine its freedom from domination.

If you will resolve this with me we can indeed bring a happy New Year not just to ourselves, but also to the people we serve.

Sincerely,



President





Editorial COMMENT

It is now estimated that 1968 will see the average daily hospital cost in Kansas cross the \$50 figure. One factor in this projection is the new Fair Labor Standards amendment passed by the last Congress.

The new law requires minimum payment of \$1.40 an hour the first year and \$1.60 an hour thereafter. Employees coming under the law for the first time shall be paid a minimum of \$1.00 an hour the first year; \$1.15 the second; \$1.30 during the third year; \$1.45 an hour in the fourth year and \$1.60 thereafter.

Also amended is the provision relating to overtime pay. After 40 hours during any work week the employee shall be paid time and a half, except for those coming under the law for the first time overtime starts after 44 hours the first year, 42 the second and 40 hours beginning with the third year.

Brought under the law for the first time are the employees of hospitals, public and private, profit and non-profit. This begins as of February 1, 1967. One minor concession was granted hospitals. They may schedule 80 hours of work within a 14-day period, provided not more than eight hours is worked in any day before overtime begins.

It is estimated that 1,471,000 employees of non-government hospitals, nursing homes, and homes for the aged will be covered by the law. It follows with certainty when the low wage employees receive salary increases skilled workers can expect improved payment also.

Certainly no one disagrees with fair payment for those whose employment in hospitals is essential. It is well known salary scales in hospitals have been low, and even under the minimum wage law it may take time before they approach community levels.

However, this new wage schedule will increase

The Fair Labor Standards Act

hospital costs, which must react toward raising Blue Cross rates and all health care insurance. It is a factor to be considered in the planning for Title XIX and will shortly appear in medicare costs. How much may be illustrated this way: A 25-cents hourly increase is \$2.00 for an eight-hour day. Figuring four employees for each hospital bed, the patient cost per day, if every bed is used to capacity increases by \$8.00.

Drug Research

Mr. C. Joseph Stetler, remembered by many for his service with the AMA, is now president of the Pharmaceutical Manufacturers Association. He provided the JOURNAL with a surprising report on research in the drug industry. The following figures result from a survey conducted by the 77 members of the association and their subsidiaries.

In 1966, these 77 PMA members budgeted 398.6 million dollars for research and development of new drugs. Of this 27.6 million dollars was for veterinary research, leaving an expenditure of more than one million dollars every day for the research and development of drugs for human use.

The average research and development costs preceeding each new drug discovery has been 5.8 million during the 1956-1965 period. The same fact stated in different terms is that 2.1 billion has been directed to the search for new drugs during the past ten years and has resulted in making available in the United States 372 new single chemical and biological entities, plus myriad compounds, new dosage forms and other drug advances.

(Continued on page 614)

Declaration of Helsinki

Recommendations Guiding Clinical Research

This resolution was first adopted by the World Medical Association in 1964. Last June, in Chicago, the American Medical Association passed a resolution that it become an official policy of the AMA, and requested that all states disseminate the information through their journals.

On Sunday, November 6, 1966, the Commission on Scientific Study of the Kansas Medical Society endorsed the Declaration of Helsinki and requested its publication in the JOURNAL, and will introduce this declaration as a resolution before the House of Delegates. If adopted it will become an official Society policy and will give support of the Kansas Medical Society to action taken by the American Medical Association and the World Medical Association.

DECLARATION OF HELSINKI— RECOMMENDATIONS GUIDING DOCTORS IN CLINICAL RESEARCH

It is the mission of the doctor to safeguard the health of the people. His knowledge and conscience are dedicated to the fulfillment of this mission. The Declaration of Geneva of the World Medical Association binds the doctor with the words: "The health of my patient will be my first consideration" and the International Code of Medical Ethics declares that "Any act or advice which could weaken physical or mental resistance of a human being may be used only in his interest." Because it is essential that the results of laboratory experiments be applied to human beings to further scientific knowledge and to help suffering humanity, the World Medical Association has prepared the following recommendations as a guide to each doctor in clinical research. It must be stressed that the standards as drafted are only a guide to physicians all over the world. Doctors are not relieved from criminal, civic and ethical responsibilities under the laws of their own countries.

In the field of clinical research a fundamental distinction must be recognized between clinical research in which the aim is essentially therapeutic for a patient, and the clinical research, the essential object of which is purely scientific and without therapeutic value to the person subjected to the research.

I. Basic Principles

1. Clinical research must conform to the moral and scientific principles that justify medical research and should be based on laboratory and animal experiments or other scientifically established facts.

2. Clinical research should be conducted only by scientifically qualified persons and under the supervision of a qualified medical man.
3. Clinical research cannot legitimately be carried out unless the importance of the objective is in proportion to the inherent risk to the subject.
4. Every clinical research project should be preceded by careful assessment of inherent risks in comparison to foreseeable benefits to the subject or to others.
5. Special caution should be exercised by the doctor in performing clinical research in which the personality of the subject is liable to be altered by drugs or experimental procedure.

II. Clinical Research Combined with Professional Care

1. In the treatment of the sick person, the doctor must be free to use a new therapeutic measure, if in his judgment it offers hope of saving life, re-establishing health, or alleviating suffering. If at all possible, consistent with patient psychology, the doctor should obtain the patient's freely given consent after the patient has been given a full explanation. In case of legal incapacity, consent should also be procured from the legal guardian; in case of physical incapacity, the permission of the legal guardian replaces that of the patient.
2. The doctor can combine clinical research with professional care, the objective being the acquisition of new medical knowledge, only to the extent that clinical research is justified by its therapeutic value for the patient.

III. Non-Therapeutic Clinical Research

1. In the purely scientific application of clinical research carried out on a human being, it is the duty of the doctor to remain the protector of the life and health of that person on whom clinical research is being carried out.
2. The nature, the purpose and the risk of clinical research must be explained to the subject by the doctor.
- 3a. Clinical research on a human being cannot be undertaken without his free consent after he has been informed; if he is legally incompetent, the consent of the legal guardian should be procured.
- 3b. The subject of clinical research should be in such a mental, physical and legal state as to be able to exercise fully his power of choice.
- 3c. Consent should, as a rule, be obtained in writ-

(Continued on page 614)



Personalities—IN KANSAS MEDICINE

George E. Burket, Kingman, was recently named president-elect of the American Academy of General Practice. Dr. Burket is currently completing a term as chairman of the board of directors of the Academy and was elected to his new position during the organization's annual scientific Assembly held in Boston, Massachusetts, in October.

Others from Kansas who attended the meeting in Boston were **Ernest R. Cram**, St. Francis; **Jack Randle**, Bucklin; **Virgil E. Brown**, Sabetha; and **Harry J. Bowen** and **William Lentz**, both of Topeka.

M. C. Spencer has announced that he will leave Liberal in January to take a three-year residency in radiology at St. Joseph Hospital in Denver. **Edwin D. Rathbun**, who is now practicing in Wichita, has purchased Dr. Spencer's home and office and will move to Liberal in January.

In October, **W. A. Grosjean**, Winfield, was named chairman of the board and president of the Snyder Clinic Association. **Clifford S. Reusch**, also of Winfield, was elected to the board of directors of the association.

James B. Fisher, Wichita, served as medical officer for a team of scientists who traveled to Bolivia, South America, in November. The purpose of the trip was to observe and record an eclipse of the sun from an observation site near the town of Huachacalla located high in the Andes Mountains of southern Bolivia.

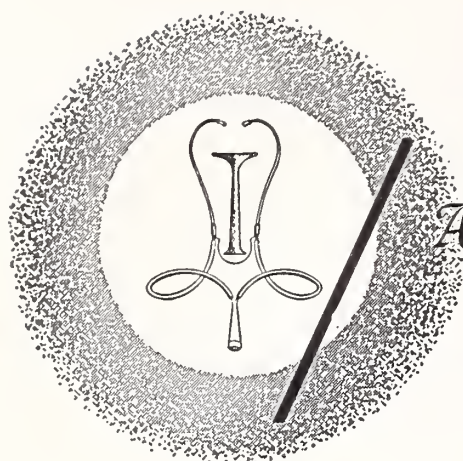
The annual meeting of the Kansas Chapter of the American College of Surgeons was held in Topeka in October. **James McClure**, Topeka, president of the Kansas Medical Society, welcomed the chapter and presided over the first session. The president of the Kansas chapter, **William A. Reed**, Kansas City, presided over the second session and business meeting. **Wayne C. Bartlett**, Wichita, president-elect for 1967, was installed during the afternoon session.

The Kansas chapter presented a 50-year certificate of appreciation to **John L. Grove**, retired Newton physician, at special ceremonies held during the meeting.

Dr. and Mrs. Farris D. Evans, Wichita, traveled to Honolulu, Hawaii, in September. During their visit, they toured the islands, and Dr. Evans attended the Pan-Pacific Surgical Association conference.

Free diagnostic clinics for crippled children of Norton and Labette counties were held in October. **Earl V. Carlson**, Hays, conducted the clinic held in Norton for children of Norton County. **Leonard F. Peltier**, Kansas City, and **John F. Lance, Jr.**, Wichita, were among the physicians participating in the Labette County clinic at Pittsburg.

James H. Holt, Wichita, has been appointed full time director of the Department of Medical Education at St. Francis Hospital. The appointment, which was effective the first of October, was made by Sister Mary Oswaldina, administrator of the hospital.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

JANUARY

- Jan. 8-10 First annual clinical meeting of the Society for Cryo-Ophthalmology, Dunes Hotel, Las Vegas. The \$10 fee will include one year's membership in the Society. For further information write John G. Bellows, M.D., 30 N. Michigan, Chicago 60602.
- Jan. 22-23 First National Congress on Socio-Economics of Health Care, sponsored by the Council on Medical Service and the Division of Socio-Economic Activities of the AMA, Palmer House, Chicago. For information write the Division of Socio-Economic Activities, AMA, 535 N. Dearborn, Chicago 60610.
- Jan. 23-25 Society of Thoracic Surgeons, Muehlebach Hotel, Kansas City, Missouri. Write: Francis X. Byron, M.D., City of Hope Medical Center, 1500 E. Duarte Road, Duarte, California 91010.

FEBRUARY

- Feb. 5-7 Seminars on the Newborn, Aspen Institute for Humanistic Studies. Write: Joseph Butterfield, M.D., Children's Hospital, 19th Ave. at Downing, Denver 80218.
- Feb. 10-11 Tenth Annual Cardiac Symposium, Del Webb TowneHouse, Phoenix. Write: Arizona Heart Association, 2824 N. 16th St., Phoenix 85006.
- Feb. 10-12 First Annual Mid-Winter Cancer Seminar, The American Cancer Society, Colorado Division, Lodge At Vail, Vail, Colorado. Write: American Cancer Society, Colorado Division, Inc., 1764 Gilpin St., Denver 80218.
- Feb. 15-19 American College of Cardiology, annual session, Washington Hilton Hotel, Washington, D. C. Write: William D. Nelligan, Exec. Dir., American College of Cardiology, 9650 Rockville Pike, Washington, D. C. 20014.
- Feb. 16 Emanuel Friedman Lecture, Children's Hospital, Denver. Edward A. Mortimer, M.D., Univ. of New Mexico, guest lecturer. Write: Joseph Butterfield, M.D., Children's Hospital, 19th Ave. at Downing, Denver 80218.
- Feb. 20-25 Annual Meeting, American Academy of Forensic Sciences, Princess Kaiulani Hotel, Honolulu. Write: Samuel R. Gerber, M.D., 2121 Adelbert Road, Cleveland 44106.
- Feb. 24 American College of Physicians, Kansas Chapter, Kansas City, Kansas. Write ACP Governor: Sloan J. Wilson, M.D., University of Kansas Medical Center, Kansas City, Kansas 66103.
- Feb. 28-Mar. 3 Winter Clinic, Colorado Medical Society, Brown Palace Hotel, Denver. Write the Colorado Medical Society, 1809 E. 18th Ave., Denver 80218.

POSTGRADUATE COURSES

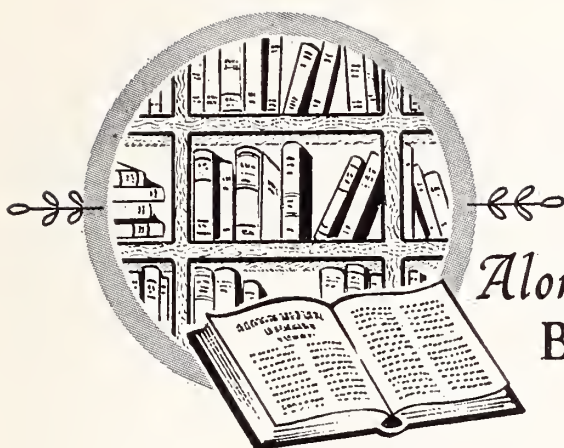
University of Kansas:

- Jan. 23-24 *Gynecology and Obstetrics*
- Mar. 6-8 *Pediatrics*
- Mar. 9-10 *Radiology and Radioactive Isotopes*
- Mar. 13-14 *Difficult Electrocardiographic Diagnoses*

For further information write the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Blvd. at 39th St., Kansas City, Kansas 66103.

University of Colorado:

- Jan. 15-21 *General Practice Review*
(Continued on page 614)



Along The BOOKSHELF

Clendening Medical Library

RECENT ACQUISITIONS

- Burch, George Edward, 1910-. A primer of electrocardiography. 5th ed. Lea & Febiger, 1966.
- Davis, Derek Russell. An introduction to psychopathology. 2d ed. Oxford University Press, 1966.
- Eysenck, Hans J. The effects of psychotherapy. International Science Press, 1966.
- Flood, Frank B. Medical resident's manual. 2d ed. Appleton-Century-Crofts, 1966.
- Friede, Reinhard L. Topographic brain chemistry. Academic Press, 1966.
- Glas, Wayne Willis, ed. The acute abdomen. Williams & Wilkins, 1966.
- Kabrisky, Matthew. A proposed model for visual information processing in the human brain. University of Illinois Press, 1966.
- Karlsson, Jon L. The biologic basis of schizophrenia. Charles C Thomas, 1966.
- Lampkin-Hibbard, Julia McCain. Lymphomas: Regression, carcinogenesis, and prevention. Miami, Florida, 1966.
- McCort, James J. Radiographic examination in blunt abdominal trauma. Saunders, 1966.
- Meschan, Isadore. Roentgen signs in clinical practice. Saunders, 1966.
- National Research Council. Food and Nutrition Board. Dietary fat and human health; a report. National Academy of Sciences, National Research Council, 1966.
- Palmer, James O., ed. Perspectives in psychopathology; readings in abnormal psychology. Oxford University Press, 1966.
- Pontificia accademia delle scienze, Rome. Brain and conscious experience. Springer, 1966.
- Rosenbloom, David. The practice of cystoscopy. Thomas, 1966.
- Rutter, Michael. Children of sick parents; an environmental and psychiatric study. Oxford University Press, 1966.

- Scheff, Thomas J. Being mentally ill; a sociological theory. Aldine, 1966.
- Schwartz, Benjamin. Clinical venereology for nurses and students. 1st ed. Pergamon Press, 1966.
- Stephens, C A L, Jr., ed. Cellular concepts in rheumatoid arthritis. . . . Thomas, 1966.
- Symposium on Recent Advances in Nuclear Medicine, Hahnemann Medical College, Philadelphia, 1965. Recent advances in nuclear medicine. Appleton-Century-Crofts, 1966.
- Symposium on the Current Status of Intensive Coronary Care, Philadelphia, 1966. The current status of intensive coronary care. . . . Charles Press, 1966.
- Viswanathan, Raman. Pulmonary tuberculosis. Asia Pub. House, 1966.
- White, Joseph M., ed. Medical education and anesthesia. Davis, 1966.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

- | | |
|---|---|
| Ralph H. Baehr, M.D.
310 Medical Arts Bldg.,
Topeka, Kansas | Roger P. Reitz, M.D.
1133 College Avenue
Manhattan, Kansas |
| Francis J. Broucek, M.D.
The Menninger Clinic
Topeka, Kansas | Robert B. Stein, M.D.
320 Sunset
Manhattan, Kansas |
| Antonio Meji-Huaman,
M.D.
105 Medical Arts Building
Topeka, Kansas | George A. Wolf, Jr.,
M.D.
University of Kansas
Medical Center
Kansas City, Kansas |
| John W. McClellan, M.D.
1710 West 10th Street
Topeka, Kansas | Hugo J. Zee, M.D.
1717 Grove
Topeka, Kansas |
| James N. Nelson, M.D.
The Menninger Foundation
Topeka, Kansas | |

Tax Advantages of E & H Savings Bonds

Interest on U. S. Savings Bonds is exempt from all taxation by any state or local taxing authority.

For Federal income tax purposes, the interest on Series E bonds *may be deferred until the year in which the bonds are cashed or reach final maturity.*

The *tax-deferral feature* is especially attractive when E Bonds are bought to create "tax-free" college education funds and for *retirement* or supplemental retirement purposes.

Education

For example, E Bonds can be registered in the child's name with a parent or the purchaser as beneficiary (not as co-owner). At the end of the first year of bond purchases a Federal income tax return should be filed in the name of the child listing the increase in bond value (interest) as income to the child. *Filing this one return establishes "intent"* and no further returns need be filed to prove intent as long as bond interest, plus other income, comes to less than \$600. And no tax is due until the income exceeds \$900. Thus, when the child's bonds are cashed to meet college costs *the accrued interest is free from income tax.* A copy of the tax return, filed the first year, should be retained as proof of intent, if needed.

An alternate choice is to wait until the child begins to cash the bonds to pay college expenses. The child then files his own tax return each year, reporting the full amount of interest on redeemed bonds as income. If this interest, plus any other income, totals less than \$900, *he will owe no tax* at all. It is emphasized that this applies only to bonds on which the child is the owner—the co-ownership form of registration may not be used for this purpose, unless the child's own funds are used in the purchase.

Retirement

Deferring interest on series E bonds until they are redeemed also makes these bonds an *excellent retirement instrument.* Income is usually lower in retirement years and, with the benefit of double exemption after age 65, *tax liability on accrued interest could be greatly reduced*—or even eliminated entirely in many instances. In the case of civilian employees of the Government, retirement payments are not taxable until benefits equal contributions.

Another option at retirement—if regular income is desired—is to exchange series E for series H bonds, using the accumulated interest as part of the purchase of the H bonds, with the privilege of *further deferring tax liability* on E bond interest until H bonds are cashed or mature. (This conversion—E's to H's—makes Savings Bonds unique; the owner can receive income while still owing taxes.) Series H bonds pay interest by Treasury check *every six months* and such payments must be reported currently for Federal income tax purposes.

Facts About Savings Bonds

There are only two series of U. S. Savings Bonds still on sale—Series "E" and series "H."

Series "E" is an appreciation bond that is purchased at a cost of 75 per cent of face value. Denominations (face value) available are: \$25, \$50, \$75, \$100, \$200, \$500, \$1,000, and \$10,000. The interest accrues at the rate of 4.15 per cent when held to maturity of 7 years.

Series "H" is a current-income bond purchased at par value in the following denominations: \$500, \$1,000, \$5,000, and \$10,000. "H" Bonds pay 4.15 per cent interest when held to maturity of ten years. The interest is paid by Treasury check each six months from purchase date.

1. *Safe*—"Safety" is rated by thousands as the single most important feature. The full faith and credit of the Federal government are back of Savings Bonds.

2. *Interest Rate*—Effective Dec. 1, 1965 the rate was raised to 4.15 per cent on both "E" and "H" bonds. *This applies to outstanding bonds as well as new issues.* "E" bonds now mature in seven years—"H" bonds ten years.

3. *Liquid*—In an emergency "E" bonds may be cashed at your bank anytime two months after issue. "H" bonds may be cashed six months after issue.

4. *No Market Fluctuation*—No need to refer to the market pages to see whether Savings Bonds are up or down. They are never worth less than your investment.

5. *Long Term Contract*—4.15 per cent interest guaranteed to maturity—seven years on Series "E" and ten years on Series "H." Interest may be increased but not decreased.

6. *Automatic Extension Privilege*—All Series E Bonds, regardless of when purchased, have had their maturities extended, and now earn higher interest since December 1, 1965. No "E" or "H" Bond has yet reached final maturity.

7. *Indestructible*—Any bond lost, stolen, or destroyed is replaced at no charge. A record of each bond sold is maintained—by serial number and name of owner.

8. *Choice of Registration*—May be issued in one name only, in the names of two persons as co-owners, or in the name of one person with a second person as beneficiary (payable on death).

9. *Sales Cost 1/7 of 1 Per Cent*—Due to the broad support of business and labor leadership, volunteers, news and advertising media, schools, patriotic organizations, etc., the cost of promoting the Savings Bond program is *only 1/7 of 1 per cent* of sales.

10. *Convenient to Buy*—The Payroll Savings plan, in operation by thousands of firms and federal agencies, is an automatic, convenient way to buy bonds. Bonds may also be purchased on the authorized monthly "Bond-a-Month" plan at your bank.

11. *Taxable Status*—Interest from Savings Bonds is subject to Federal income taxes, but not to state or local income taxes. Federal income tax may be deferred until bonds are cashed or finally matured. The bonds are subject to estate, inheritance, gift, and other excise taxes, both Federal and state.

12. *Not Subject to Probate*—Savings Bonds issued with a surviving co-owner or beneficiary do not form a part of the estate for *probate* purposes, but—their value must usually be included in computing the gross estate for estate and inheritance tax purposes.



Book REVIEWS

THE CELL, ITS ORGANELLES AND INCLUSIONS, by Don W. Faucett, M.D. W. B. Saunders Company, Philadelphia, 1966. 448 pages. \$11.00.

The Cell, Its Organelles and Inclusions is an atlas of the cellular structure as it is shown by the electron microscope. The book is composed of three chapters divided in sections which deal with individual cellular components. Each section includes an introduction, page-size electron micrographs, concise legends and footnotes identifying the species and organ of origin of the illustration as well as its magnification and the fixative employed. A short list of the classic and recent papers is found at the end of the sections.

The first chapter, "The Cell Organelles," consists of micrographs of the nucleus, centrioles, mitochondria, Golgi complex, endoplasmic reticulum, lysosomes, cytoplasmic microbodies, microtubules and filaments. The nuclear membrane, nuclear pores and the granules of the eosinophilic leukocytes reveal amazing complexity at magnifications between 80,000 \times and 100,000 \times .

The second chapter is titled "Cell Inclusions" and consists of illustrations of secretory granules clearly shown within the Golgi complex; pigmentary inclusions such as melanin, lipofuscin and materials such as glycogen and lipids are identified in the cytoplasm. This part ends with views of crystalline inclusions.

The third chapter is devoted to the "Cell Surface," it contains detailed pictures of the cell membrane, basal lamina (basal membrane), intercellular junctions, pseudopodia and phagocytosis; stands out in this chapter the demonstration of micropynocytosis a phenomenon which probably plays a significant role in the transport of water through the capillary wall. The final pages of the book show stable formations

of the cell surface namely, microvilli, kinocilia, flagella and sperm tail.

Faucett accomplishes understanding and easiness in an area of feverish research and varied discoveries; he has written a book to fill the gap between the conventional cellular morphology and the overwhelming flow of medical literature regarding fine structure of cells and tissues. This book will be essential to the student and a source of consultation for the researcher of biologic science. It will enrich the background of every interested physician and will become a working tool for pathologists, more so, when the electron microscope is used in clinical work. This wide range of appeal, the well correlated presentation and the magnificent quality of the electron micrographs are the most outstanding features of this book of modern cell biology.—A.H.

A HISTORY OF PATHOLOGY, by Esmond R. Long, Ph.D., M.D. Dover Publications, Inc., New York, 1965. 199 pages illustrated. \$2.00.

This small, paperback book gives a concise review of pathology and medicine from prehistoric times to the present. It traces the steps forward furnished by different cultures and eras and the stagnation produced by others. Examples are given of the excellent descriptions of autopsies of disease entities but the etiologies were misinterpreted because of the lack of knowledge and acceptance of erroneous theories. It shows how these errors were gradually corrected as circulation, cellular structure, and micro-organisms as well as numerous other things were discovered.

This book gives the physician and student an appreciation of the vast knowledge and instrumentation with which he has to practice medicine today and how slowly these were developed. It also makes him

realize that many of today's accepted theories and treatments will be laughably archaic in the future.—*W.W.S.*

THE APPLICATION OF NEUROLEPTANALGESIA IN ANAESTHETIC AND OTHER PRACTICE, edited by N. W. Shephard, M.B. Pergamon Press, Inc., New York, New York, 1965. 96 pages. \$8.50.

This short book (92 pages of text) contains the edited proceedings of the First British Symposium on Neuroleptanalgesia. The first chapter is devoted to animal pharmacology of the relatively new neuroleptic tranquilizers (Droperidol) and the analgesic narcotics (Phenoperidine and Fentanyl). Subsequent chapters discuss clinical applications, particularly in neurosurgical, obstetrical, and cardiovascular surgery. Following each chapter is a round table discussion by the various speakers.

The material is easy to read although, under the circumstances, I am sure it was hard to organize. Although understandably outspoken in favor of the neuroleptanalgesic technique, the authors candidly discuss the problems and disadvantages of its use.

This book will be of great value to those interested in the use of this technique apart from general anesthesia.—*R.T.P.*

Editorial Comment

(Continued from page 607)

Narcotic Drug Regulations

During the 12 month period ending December 31, 1965, there were 2,503 thefts of narcotic drugs from all classes of persons registered under the Federal narcotic law. This is the largest number of thefts ever reported in a single year, and the thefts accounted for a loss of 132.86 kilograms (292.90 pounds) of narcotic drugs.

Although most registrants provide adequate safeguards for their narcotic stocks, some registrants do not, and the increase in thefts leads us to again issue a warning that continued vigilance must be exercised and secure places of storage provided for narcotic stocks. The addicts, as well as the narcotic peddler may resort to diversion of legitimate stocks as the supply of illicit drugs becomes restricted.

Section 151.471 of Regulations No. 5 requires that "Narcotic drugs and preparations shall at all times be properly safeguarded and securely kept. . . ." In every case, appropriate security measures must be taken depending on the kind and size of stock, the immediate surroundings, and the general circumstances. Manufacturers and wholesale dealers especially, who constitute the source of supply for other

registrants and who are generally known to carry substantial supplies, should be alert to see that their stocks are fully protected. A recent theft from a wholesale dealer resulted in the loss of several thousand morphine tablets and ampoules.

Standards for safeguarding narcotics of the various classes are set out in our Bureau Order No. 213, which is available on request. Consult this office or the Narcotic District Supervisor for your area when in doubt regarding safeguards or when moving narcotic stocks to a new location. *From the Commissioner of Narcotics, Treasury Department, Washington, D. C.*

Announcements

(Continued from page 610)

Feb. 6-10 *Management and Care of Respiratory Insufficiency* (offered three times a year; limited to 10 registrants for each course)

For further information, write the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver 80220.

Hahnemann Medical College and Hospital:
(Department of Medicine)

Jan. 11-13 *Bedside Diagnosis—Part IV*

For further information write the Department of Medicine, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia, Pennsylvania 19102.

Feb. 19 *The Sociopath in Our Modern Society*, Neurological Hospital, Kansas City, Missouri. Gene L. Usdin, M.D., New Orleans, guest lecturer. Write: Neurological Hospital, 2625 W. Paseo, Kansas City, Missouri 64108.

Declaration of Helsinki

(Continued from page 608)

ing. However, the responsibility for clinical research always remains with the research worker; it never falls on the subject even after consent is obtained.

- 4a. The investigator must respect the right of each individual to safeguard his personal integrity, especially if the subject is in a dependent relationship to the investigator.
- 4b. At any time during the course of clinical research the subject or his guardian should be free to withdraw permission for research to be continued. The investigator or the investigating team should discontinue the research if, in his or their judgment, it may, if continued, be harmful to the individual.



***“Present Day Legislation and Its Effect on the
Medical Profession”***

EDWARD R. ANNIS, M.D., *Guest Speaker*

8:00 p.m., January 18, 1967 1102 South Hillside, Wichita

The Medical Society of Sedgwick County has asked the Journal to announce the above program. Dr. Annis is a past president of the AMA, and a well known speaker. An invitation to attend the meeting is extended to all physicians of Kansas by the Sedgwick County society.

KANSAS STATE DEPARTMENT OF HEALTH
TOPEKA, KANSAS
Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence
Summary of Cases Reported in August, 1966 and 1965

<i>Diseases</i>	<i>August</i>		<i>5-Year Median 1962-1966</i>	<i>January-August Inclusive</i>		<i>5-Year Median 1962-1966</i>
	<i>1966</i>	<i>1965</i>		<i>1966</i>	<i>1965</i>	
Amebiasis	2	—	2	8	3	12
Aseptic meningitis	1	—	1	1	3	3
Brucellosis	4	—	—	7	3	6
Diphtheria	—	—	—	—	1	—
Encephalitis, prim., infect.	9	7	3	11	15	15
Encephalitis, post-infect.	—	—	*	—	4	*
Gonorrhea	260	255	260	2013	1688	1913
Hepatitis, infectious	13	14	20	123	335	335
Meningococcal meningitis	3	—	—	13	13	11
Pertussis	—	1	2	11	12	15
Poliomyelitis	—	—	—	—	—	—
Rheumatic fever	—	—	—	—	2	2
Salmonellosis	52	31	31	173	182	173
Scarlet fever	6	—	—	83	59	83
Shigellosis	8	11	8	49	90	49
Streptococcal infections	149	59	59	1712	2175	1138
Syphilis	109	65	70	800	590	731
Tinea capitis	4	7	4	30	44	45
Tuberculosis	17	27	20	200	168	179
Tularemia	—	—	—	—	2	4
Typhoid fever	3	—	—	5	—	1

* Statistics for 5-year median not available

ENCEPHALITIS—PRESENT DIMENSIONS

As of October 12, forty suspected cases of arthropod-borne encephalitis have been reported in Kansas. The distribution includes eleven cases in Ford County, nine in Sedgwick, five in Phillips, four in Barton, two in Johnson, and one case each in nine other counties. Three fatalities have been reported.

Laboratory confirmation has been achieved on only two cases, both of which were Western Equine Encephalitis. Two reasons why more of these cases have not been confirmed are as follows: First, antibodies for the WEE virus are slow to develop and may not be detectable as an increase in titer until three or four weeks after the acute phase of the disease. When there is no change in serologic titer for the second blood specimen, which is usually submitted two weeks after the first, then a third blood specimen should be submitted. Secondly, the occurrence of enteroviral infections, Coxsackie and ECHO, has complicated the clinical picture in Kansas. For example, Coxsackie A-9 virus has been isolated from patients with encephalitis-like symptoms in ten Kansas counties dur-

ing the past two months.

It should be emphasized that when an enteroviral etiology is suspected, stool specimens should be submitted for viral isolation studies since it is *not* practical to perform serological tests for ECHO and

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ARTHUR P. CLOYES, M.D.

Dr. Arthur P. Cloyes, 61, died at his home in El Dorado on October 20, 1966.

Dr. Cloyes was born in Boston, Massachusetts, on September 24, 1905, and came to Kansas with his parents in 1922. He received his medical degree from the University of Kansas School of Medicine in 1933. After completing his internship at Kansas City General Hospital, he began his medical practice in El Dorado in 1934. He was a veteran of World War II, having served with the medical corps in Europe.

Surviving Dr. Cloyes are two daughters and a son.

ALFRED E. CORDONIER, M.D.

Dr. Alfred E. Cordonier, Troy, died at the Atchison Hospital in Atchison on October 25, 1966. He was 83 years old.

Dr. Cordonier was born near Wathena on December 28, 1882. He was graduated from the University of Missouri School of Medicine in 1905 and served as an assistant instructor in pathology at the university for a year after his graduation. He established his medical practice in Troy in 1906 and followed his profession there until his retirement several years ago.

He is survived by his wife, a daughter and two sons.

CECIL D. SNYDER, M.D.

Dr. Cecil D. Snyder, 61, Winfield, died on October 18, 1966, while hunting near Mitchell, South Dakota.

Dr. Snyder was born in Winfield on March 13, 1905. He was graduated from Jefferson Medical College, Philadelphia, in 1929 and entered practice in Winfield in 1931. At the time of his death he was president of the Snyder Clinic Association and the H. L. Snyder Research Foundation, which he organized in 1944 as a memorial to his father who was also a physician. He was a brother of Dr. Howard E. Snyder of Winfield.

Other survivors include his wife, two sons and a daughter.

WARD W. WELTMER, M.D.

Dr. Ward W. Weltmer, 73, Beloit, died on October 20, 1966, at the Asbury Hospital in Salina.

Dr. Weltmer was born in Smith County near Smith Center on July 14, 1893. He was graduated from the University of Kansas School of Medicine in 1921. After serving his internship at Trinity Lutheran Hospital in Kansas City, Missouri, he began his practice in Hiawatha and later moved to Ada. He moved to Beloit in 1926 and continued his practice there until his death. Dr. Weltmer was a past president of the staff of the Community Hospital in Beloit and served for many years as coroner and county health officer of Mitchell County.

A son, Dr. Roger P. Weltmer of Beloit, survives.

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